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Editorial

The third issue of the Calcutta University Journal of Information Studies (CUJIS) is published with continued help and encouragement from the authorities and employees at different levels of the University. Co-operation and involvement of present and former teachers and students of the Department are also spontaneously forthcoming. The Editor is most thankful to all of them. The University has been allocated 5-Star status - which is the highest level of honour in India that an institution of higher learning can aspire for. The Department is glad to share the honour and is trying to march forward along with the University's progressive strides.

The effect of a changed syllabus is now being felt. Moreover the teachers and the students of the Department are enthusiastically adopting to the changes that are occurring in the Library and Information Science field. The students of both BLIS and MLIS are now offered practical training in computing. MLIS students can use the computer lab independently during their free time. The facility of the existing small computer lab is extensively used mostly by MLIS students. A larger lab is under preparation. A facility for a library and seminar room is also taking shape. All these are imparting confidence to our students. Results of National Eligibility Test (NET) by our students are not discouraging.

Many other encouraging developments and events are taking place in the Department.The first volume of this journal (CUJIS) has 64 pages; the second volume has 80 pages; this third volume has 96 pages. Copies of CUJIS are sent to a number of secondary services. Abstracts have started to be published in some of them. It is hoped that the present volume will also be well received by the members of the profession like its predecessors.

For the first time in the history of the independent existence of the Department (after it was separated out from the University's library system in 1958 with appointment of two full time lecturers) two teachers have been promoted to the rank of professor. Students and teachers of the Department are very happy on this attainment of Prof Bhubaneswar Chakrabarti and Prof Arjun Dasgupta.

Yet another (second in the series) Refresher Course for teachers of Library and Information Science and College Librarians was successfully organized under the joint co-ordinatorship of Dr Bhubaneswar Chakrabarti and Dr Biplab Chakrabarti with the central theme, Information Sources, Systems and Services.

One of the first two full-time Lecturers who were appointed in 1958, Professor Subodh Kumar Mookerjea passed away on 23 March 2000 at the age of 89 (b.01 March 1911). Prof Mokherjea retired from the Department in 1976. A meeting of condolence was arranged in the Department. The main speaker was Prof Tarun Kumar Mitra, who is also a retired teacher of the Department and who was a student and a neighbour and a protegé of Prof Mukerjea.

One other ex-teacher (part-time) of the Department also passed away during this period. Prof Raj Kumar Mukherjee (b.10 July 1910 - d.29 December 2000) is considered as one of the finest and original thinkers in Indian library scene of his time. Unfortunately he wrote almost everything in Bengali and therefore his contributions could not be well known outside a small circle of admirers.

The Department is now thriving for a better prospect. We want more and better contributions from our students, research scholars and young ex-students to make CUJIS of international standard. For that we have already introduced severe refereeing and editing procedures.

Biplab Chakrabarti

> [Librarian's] duty does not end with the acquisition, classification and care-taking of the volumes in his charge; in other words, it is not exhausted by mere multiplication and division; he must have a proper understanding of his books as well. If a library is too big, it becomes practically impossible for the librarian adequately to acquire such true understanding. That is why *I feel that the big library can but function as a store house and only the small one serve as a refectory to furnish the wherewithal for daily sustenance and enjoyment.*
>
> – *Rabindranath*

Bibliographic Control of Kannada Literature by the National Library : A Bird's Eye View

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Introduction

ALA Glossary defines a National Library as a library designated as such by the appropriate national body and funded by the national government. Its functions may include the comprehensive collection of the publication output of the nation; compilation and maintenance of a national bibliography, a comprehensive collection and organization of publications on an international scale for the scholarly community, the production of bibliographical tools, the coordination of a national library network, the provision of a library services to the national government or some of its agencies, and other responsibilities delineated by the national government.

The National Library, Calcutta formerly known as the Imperial library, Calcutta is an institution of national importance recognized by the government of India as a very special establishment devoted to the promotion of library services in the Country. The Constitution of India, 1950 in its schedule seven, List-I Section 62, specifically mentions the institution styled as the National Library, Calcutta.

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The Belvedre campus of the National Library with an area of nearly 30 acres of land gave enormous scope for spatial development. The Delivery of Books Act of 1954 (amended in 1956) brought into the Library all the publications issued in India as well as newspapers and periodicals. This helped the Government of India to issue the Indian National Bibliography as an authoritative classified record of current Indian publications. The first issue of the bibliography comprising books received in the National Library under the Act during the last quarter of the year 1957 was released in the 15th August 1958.

Role of the National Library in bibliographic control

Under an executive order of the Government of India in 1953-54, the National Library had started receiving books under the Press and Registration Act, 1867. The Bibliographic Control for the pre 1953 period (going back to 1901) was, through in a limited way, thoughtfully taken care of in the ambitious project of the National Bibliography of Indian Literature (1901-1953) under the aegis of the Sahitya Academy. This bibliography covers all publications of literary merit, as also works of abiding value, which came under the preview of Humanities. This Bibliography has been proving its usefulness as an important reference source. The Librarian, the National Library was not only the technical adviser but also the general editor of the work, and the National Library itself compiled the sections on English, Sanskrit and Oriya. After all, this is a retrospective bibliography of Indian publications prior to 1959 covering the period 1901-1953

In 1955, the Union Government appointed a committee to define a framework and general structure and principles of the Indian National Bibliography. It was due to the initiative and involvement of B.S.Kesavan the bibliography made its first appearance as a pilot issue in 1958. This bibliography listed all books published in India in all the languages recognized in the constitution of India, Use of romanisation was decided to make this multilingual bibliography user friendly the world over.

D. B. Act and its impact on bibliographic control

The Delivery of Books Act was passed in the year 1954. The Act made it obligatory on the part of every publisher in India to deposit a copy of the publication with the National Library and three other depository libraries namely Connemara public library, Madras, Central Library, Bombay and Delhi Public Library, Delhi free of cost within 30 days from the date of publication. The D.B. Act was again amended in the year 1956 to include newspapers and periodicals also. Under the D.B. Act the National Library, Calcutta receives all books published in India. For the purpose of acquiring and processing these books the National Library has all official language divisions are made available these books to Central Reference Library for preparing a National bibliography called Indian National Bibliography, one of the important reference tools to know what books published in India.

With the enactment of the D.B. Act 1954 (amended in 1956) the National library, Calcutta became the centre for bibliographic control in Indian publications irrespective of language.

Central Reference Library

Following the enforcement of the D.B. Act the Government of India created the Central Reference Library for the purpose of the preparation and publication of the I.N.B., which would serve as the current record of the national book production. In this effort towards bibliographical control of Indian publications the task of the National Library has been to see that the deposit act is implemented effectively, which means that all publications duly received in the Library for the coverage of the I.N.B. directly depend on the receipts of books from Indian publishers to the National Library.

The provision of the D.B.Act is such that unless a publisher himself voluntarily deposits his publications it is very difficult to force them to deliver the books to the Library. A publisher may defy the law , since the punitive measures are slight and too much time consuming.

Being the legal depository, the National Library to collect effectively requests all publishers through notices for getting their publications to the National Library. For this purpose The National Library tries to keep track of all publishers through lists published by publishers, weekly newspaper editions carrying notices of new books and other bibliographical lists published by the leading institutions. Even though the interest of the publishers to send books to National Library is very important. It will help to keep all books published in the nation. And also the publication of I.N.B. must be up to date. The Government of India invited Joel C. Downing in the year 1982, a retired member of staff of BNB, to advise on the re-organization of the INB, which had been in an inanimated state since 1977. Probably after taking Down's[1] observations, and suggestions into consideration the INB restarted its publication again from Jan. 1984.

Bibliographical control

According to an official UNESCO statement "Some aspects of UNESCO's role with respect to a bibliographical control 1945-1965" (Paris, UNESCO 1967), it is a term variously defined but conveying the idea of a goal which has proved to be tantalizingly elusive. It is discouraging to start with an impression that the concept of Bibliographical Control is an illusion, but the following definitions indeed convey the 'idea' referred to above.

Definition one : "Bibliographical Control is defined to mean the mastery over written and published records which are provided by and for the purposes of Bibliography. Bibliographical Control is synonymous with effective access through bibliogrpahies. Thus a reference to the bibliographical control of medicine means effective access through bibliographies to sources of medical information."

Definition two : "Bibliographic Control is the development and maintenance of a system of adequate recording of all forms of material published and unpublished, printed, audio visual or otherwise, which add to the scene of human knowledge and information" (UNESCO)[2]

Definition three : Stokes[3] defines "bibliographical control as the process of knowing various kinds of bibliographical tools". Davinson[4] describes it as various kinds of bibliographical measures that were taken in the past and that should be taken in the future in order to achieve full bibliographical control.

Need for bibliographical control

Information explosion, information flood, paper storm, etc., are the evocative terms coined to draw attention to the dramatic growth of literature Works that have been completed and published are often duplicated either due to unawareness of published reports or due to the fact that the cost of repetition or research is cheaper than the cost of carrying out a detailed literature search. There are number of examples of what ultimately appear as highly significant discoveries lying unnoticed for years in the literature due to the lack of bibliographic control. So bibliographic control over published documents is very important all the way.

Bibliographic control in Kannada language

Kannada is the language of Karnataka state consisting of 27 districts with four and a half crore people. Geographically the state is very big having Maharastra, Kerala, Tamil Nadu and Andhrapradesh as neighboring states. So the border districts of Karnataka state influenced by respective state languages. But still it is one of the important rich languages and cultures. This language so far having received seven Janana Pitha awards shows its richness[5]. The nature of publishers of this language is critical. The professional publishers are very less. Majority of the publishers are respective authors of the book or their relatives or friends. And also some author-publishers are situated in remote areas of the state, they are not aware of the P.R. Act, D.B. Act and its effect and usefulness So, this type of literature will not come under the preview of the Bibliographical Control. This literature will not get any publicity. Totally the main purposes of those books are very narrow and limited scope. So we can conclude that no single agency or institute cannot collect 100% of books published in Kannada. At the local level, regional level, state level and national level there are so many institutes serving to the people in this regard. But still it was not possible to control over 100% materials published in Kannada language in the past. At the state level the State Public Library has the P.R.Act for collecting all materials. At the same time the National Library, Calcutta has D.B. Act 1954 for collecting all materials. But both the acts failed to fulfill their objective of acquiring of all the material published in Kannada language.

The following table shows the number of books collected by the State Public library, Bangalore and The National Library, Calcutta under P.R.Act and D.B.Act respectively :

Year	Approximate no. of Publications	No. of books received in State Central Library	Percentage	No. of books received in National Library	Percentage
1980-81	1,500	720	48	500	33
1981-82	1.500	966	64	502	33
1982-83	1,500	915	60	NA	–
1983-84	1,500	647	43	NA	–
1984-85	1,500	943	62	NA	–
1985-86	1,500	1067	71	NA	–
1986-87	1,500	1277	85	885	56
1987-88	1,500	1653	110	965	64
1988-89	1,500	1235	82	823	55
1989-90	1,500	1841	122	976	65
1990-91	1,500	1762	117	1138	76
1991-92	1,500	1969	131	748	49
1992-93	1,500	1390	93	744	49
1993-94	1,500	–	–	309	21
1994-95	1,500	–	–	385	26

Some leading bibliographers of Kannada language, opine that every year 1,500 Kannada books published in Kannada language. As we analyze the books are being received by State Central Library under P.R.Act and Nation Library, Calcutta under D.B. Act, the percentage of acquisition is very much less. Exceptionally some years having more number of acquisition as compared to our estimated number, implied that book production in Kannada language is more than 1,500 per year. In that case we can say that the acquisition by State Central Library and National Library, Calcutta is less than 50%.

Year	Excepted Average books Published	No. of books acquired	Percentage
1998-99	1,500	793	53
1997-98	1,500	508	34
1996-97	1,500	561	37
1995-96	1,500	933	62
1994-95	1,500	385	26
1993-94	1,500	309	21
1992-93	1,500	744	49
1991-92	1,500	748	49
1990-91	1,500	1138	76
1989-90	1,500	976	65

For our study we have decided to kepp 1500 books every year. If we compare with State Central Libraries collection and D.B.Act collection of National Library both the acts have failed to collect all the published materials. There are so many administrative, legal difficulties to take action against the publishers/authors who are not depositing under the act. But it will not work in this regard. The above cited table shows the books acquistion of the National Library last 10 years. It shows the very poor response against the D.B. Act.

First of all the publishers are not aware of the usefulness if they deposit their publications to the State Central Library and National Library. Both libraries are preparing bibliographies respectively State Central Library Bibliography and Indian National Bibliography from Central Reference Library, Calcutta. In this way their books get publicity to the vast number of needy readers. Through this they will get indirect marketing of their publications.

Secondly, if we think on the reader side, these bibliographies will not cover 100% of the publications published, and then its scope will be limited. If reader searching some information on his interest would not find, then in the beginning itself he will not depend on that bibliographies. So the main purpose of the bibliography will fail.

The time gap between the publication of book and the publication of the bibliography is also another important factor. The Central Reference Library, Calcutta is the authority for preparing INB has adopted complete automation, so that it will bring out the bibliography very speedily without any delay. In this direction, it has already published June 2000 monthly issue in June 2000 itself. So, application of computerization in bibliographical activities is solving the time gap problem.

Lastly, the publishers are also not co-operating with the D.B.Act provisions. Due to the high price of book, and they have to send too many complimenting copies to State Public Library, Connemara Public Library, Madras, City Central Library, Bombay and Delhi Public Library, Delhi. So the publishers/authors purposefully avoid sending the same. Being 2000 Kms. far from Karnataka, the National Library, Calcutta does not have any proper control on them.[6]

How to Improve in bibliographic control

Bibliographical Control on written documents in a State, Country or a language is the basic concept and the requirement of each and every reader. Any researcher can start his work with the help of a bibliography. If he will not get proper effective bibliography, he will fail in the beginning itself. So every country must publish its National Bibliography covering all materials published within the country and material published on that country in other parts of the world. Effective National Bibliographic Centre is required to prepare the same.

Now, our study is limited to Kannada language bibliography. As mentioned earlier Kannada language bibliography is having many problems. First we have to solve all problems to make bibliography effective, regular and maximum coverage.

For this purpose the local centre should necessarily collect, process and prepare Kannada bibliography. The National Library can collaborate with the State Public Library or any other State Literary Organization for this purpose. It avoids unnecessary duplication of work and encourages uniformity.

Lastly, standardization in bibliographic format is essential. Now a days due to advancement in technology we can include the kannada language books to National and International level. In this regard UNIMARC programme is the best example. The transliteration of Kannada bibliography with standardized format can incorporate easily the national and international bibliographies .

Conclusion

Bibliographical control is quite difficult. It involves a meticulous step and a band of devoted workers. It also involves amendments of relevant laws to incorporate drastic measures like taking out certificate of delivery of books prior to its publication/ distribution.

The recommendations of 1977 International Congress on National Bibliographies first endorsed the concept of Universal Bibliographic Control, next emphasized the need to strengthen national bibliographic control as a "prerequisite of universal bibliographic control, and then went on to recognize the importance of national bibliographic control".[7] This placing of the national bibligraphy in the centre of national bibliographic control was an important. Advance on the ideas, which came from the 1977 congress's predecessor, the 1950 UNESCO conference on the Improvement of Bibliographic Services.

The future of the National Bibliography of India may be said to depend on its functions as the catalogue of the collection, whether actual or national. formed by the implementation of legal deposit laws; and its role in bibliographic control is secured so long as that collection is maintained.

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Abstract : The paper discusses the role of the national library in the context of bibliographic control of Kannada literature with special reference to Delivery of Books Act and its impact on controlling the publications received by the Central Reference Library and suggests some methods of improvement in bibliographic control.

Information Requirements of Social Scientists and Humanists of Burdwan University : A Survey

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Introduction

Information is beginning to be considered a vital resource both in education and research. Specially, it is imperative for the survival and completion of an research programme. Though a large number of studies to assess the information requirements of scientists have been made in west which ranges nearly to 1000 studies as per Maurice Line's observation, yet such type of studies for ascertaining the information requirements of social scientists and humanists is rather less in number. 'Investigation into Information Reuirements of Social Scientists' was launched in the Bath University during the period of 1968 to 1970. In India several studies were also made by both the teachers of library and information science schools as well as the professional librarians. The information requirements of social scientists and humanists differ to a great extent as compared to that of scientists engaged in experimental research. Actually the social scientists and humanists have to depend much on published written information to keep themselves abreast in the recent developments in the field of their interests. But due to lack of packaged information in various forms as well as lack of dissemination the same promptly to the researchers, they fell constraints to have the required information for their research programme. Even also information requirements vary among individual researcher of different subject field due to a large spectrum of factors which affecting information needs, such as the subject field of his work; length of research experience, the stage that a project has reached, the nature of the institution, its size and the pattern of communication within the institution etc. In this surveya humble attempt has been made to acretain how and where the social scientists and humanists gather and use the information for their research purpose and at the same time attempt has been made to infer towards the development of information sources and services of Burdwan University Central Library to meet the requirements of research scholars of humanities and social science disciplines.

Objectives of the survey

The main objectives of this present survey are to ascertain :—

- The information requirements of the social scientists and humanists,
- the information sources consulted by them,
- The frequency of use of different types of sources,
- Various approaches to information,
- Problems of access to information by the, scholars ,
- The various services provided by the university library and other information centres.
- To give suitable suggestions for developing the overall library & information infrastructure in the university.

Scope of the survey

This survey was confined to the research scholars in the department of humanities and social sciences of Burdwan University in 2000. Humanities department includes English, Sanskrit, Bengali and Hindi, foreign languages i.e., Franch, Russian, German and Social Sciences include the department of Library and Information Science, Philosophy, Sociology, Political Science, Economics, Law, Commerce, Business Administration, Journalism and Mass communication, Population studies, Tourism and History. The teachers of the mentioned subjects were excluded from this survey. This survey delineates three important requirements of the research scholars such as : a) the information required to keep abreast of the developments in their specific subject field; b) most up-to-date information to specific query; and c) report of all the work done on a given subject over a specified period of time in the field of their interests. The scope in further limited to the use of only formal information sources available in the university central library for the research scholars. The formal information sources are those that have been approved through the selection processes of referring, editing and reviewing procedures and fit for consumption of library users, such as, journals, monographs, books, abstracts, indexes, etc. This paper is therefore, concerned with examining the variety of formal information sources and library services by which the research scholars of humanities and social sciences of Burdwan University collect and organise their information for research work.

Survey methodology

The data collected from this survey is based on a self-administered questionnaire as the main instrument, distributed to the research scholars of the said departments. Fifty (50 research scholars participated in this survey programme. The data collected from the questionnaire is tabulated, analysed and discussed accordingly.

Analysis of data

The data generated from the questionnaire is interpretated in the following tables :

Journal consultation

Table 1 reveals the frequency distribution of number of Journals consulted regularly by the scholars. The number of journals which researchers read on a regular basis is an indication of researchers consciousness of literature search as well as indication of their information requirements. However, there is a problem of availability of required journal for their research work. The average number of journals read by each of the researchers is 3.4.

Table-1: Frequency distribution of number of journals

No. Of Journals Read	N=50	%	Cumulative
1	7	14	14
2	12	24	38
3	11	22	60
4	3	6	66
5	8	16	82
More than 5	9	18	100

It is not possible to determine from the available date to what extent the journals regularly read satisfy the information requirements of the researchers or to estimate the proportion of the reading made by the researchers.

Table 2 reveals that mean number of journals consulted on a regular basis increases slightly with their research experience. If the number of journals consulted by the researchers on a regular basis is an indication of the amount of reading made by the research scholars, then the data generated from the questionnaire indicates that the senior researchers read more number of journals than the newly joined research scholars in the department.

Table-2: Mean number of journals for categories of experience

Type	n	Mean	Standard Deviation
Newly joined Scholars	30	3.2	1.7
Fairly experiences Scholars	11	4.8	3.2
Experienced scholars	9	6.5	3.8

The table shows that experienced research scholars read much more journals than newly joined ones. The explanation for this is that the experienced researchers get acquainted with more availability of journals from different libraries and information centres with the passage of their research work than that of the newly joined scholars, It can also be inferred that the senior research scholars get involved in more informal contacts which allows them to have more journals or whereabout of the relevant journals in their field. It can also be inferred that experienced research scholars acquire information sources at their own expense. Of the 50 research scholars who reported reading at least one journal on a regular basis, 12 indicated that they collect at least one of the titles through their personal arrangement and 10 received at least 2 titles through their personal arrangement.

Table-3 shows the rank of information sources according to their userfulness. According to the table most of the scholars gave highest ranking to journal than other sources. After journal, the books rank second and then abstracts rank third position. This agrees the general statement, that journal literature is the most important source of current information to the research scholars.

Table-3: Ranking of information sources and services

	Very n=50	useful %	Less n=50	useful %
Journals Books	44	88	6	12
Books	38	76	12	24
Abstracts	40	80	10	20
Reference Books	29	58	21	42
Indexes	25	50	25	50
Reports	19	38	31	62
Thesis	36	72	14	28
Xerox Facility	41	82	9	18

Table-4 indicates that the ranking of journals is dependent on the subject of research. It is seen from the table that all the respondents in library and information science, Economics sociology ranked journals as very useful sources of material for their research work.

Table-5 shows the frequency distvibution of number of journals acquired by researchers through their personal arrangement. The range of journals was taken from 1-5 having mean value approximately 2. This data indicates that the average number of journal acquired by the researchers through their personal arrangement is almost half of the average numbers of journals read on a regular basis. it is so because of the fact that university library allow the scholars to use the journals greater in number than that of other means from where the scholars avail of themselves either from borrowing journals from other libraries or from their guide's personal collection.

Use of library

Table-6 indicates the percentage of respondents in each categories of documents available in the library of University of Burdwan. The analysis shows that most of the researchers agreed that University collection, mainly primary and Secondary documents as shown in the table are not adequate enough to satisfy their requirements pertaining to their research work.

Table-4: A cross-discipline study of journal usefulness

Discipline	Very	useful	Less	useful
	n	%	n	%
Library & Information Science (n=2)	2	100	1	16
Philosophy (n=8)	7	84	1	16
Sociology (n=1)	1	100	–	–
Political Science (n=5)	3	60	2	40
Economics (n=3)	3	100	–	–
Law (n=3)	2	66	1	34
Commerce (n=7)	5	71	2	29
Business Administration (n=3)	2	66	1	34
English (n=3)	2	66	1	34
Sanskrit (n=3)	1	33	2	67
Bengali (n=6)	3	50	3	50
Hindi (n=1)	1	100	–	–
History (n=5)	4	80	1	20

Table-5: Journals acquired by personal arrangement

No of Journals	n=50	%	Cumulative %
1	28	56	56
2	7	14	70
3	7	14	84
4	4	8	92
5	2	4	96
More than 5	2	4	100

Table-6: Opinion of the scholars about the information sources of the university library

Type of Document	Adequate %	Moderately adequate%	Inadequate %
Periodical	30	60	20
Books	70	20	10
Back volume of Periodicals	20	40	40
Thesis	10	10	80
Reports	15	25	60
Reference Book	26	30	45
Abstracts	30	20	50
Indexes	70	10	20

Table-7 indicates the frequency of visit to the university central library by the researchers for the purpose of using the library resources and services. It is observed from the table that 10 scholars out of 50 i.e., 20% reported visiting the library at least once in a week; 2 scholars out of 50 i.e., 4% using library once in a month; 6 scholars out of 50 i.e., 12% using library twice in a month, 28 out of 50 i.e., 56% using library more than twice in a month and 8% using library seldom.

Table-7: Frequency of visit to the university central library

	n=50	%	Cumulative %
Once in a week	10	20	20
Once in a month	2	4	24
Twice in a month	6	12	36
More than twice in a month	28	56	92
Seldom	4	8	100

Table-8 reveals the reasons for seldom use of university central library.

Table-8: Reasons for Seldom Use

Reasons	n=4
Collect information from other sources	1
Library does not provide the required materials	1
Library environment is not conduceive	2

Table-9 shows that the researchers do not get satisfied with the information sources available in the university library. The need to visit other libraries and collect data to fulfill their needs. The analysis further reveals that they are not solely depend on the University library's sources. The visity to other libraries.

Table-9: Visit to other libraries

Purpose	Regularly %	Occasionally %	Seldom %
To borrow periodicals	14	26	60
To borrow books	23	55	22
Consultation of Reference source	62	23	15
Casual visit	15	15	70

Table-10: Services obtained at present in the university library vs other information centres

Particulars	Service obtained from University Library	Service obtained from other information centres
Bibliographical services	Yes	Yes
Current awareness services	Nil	Yes
Selective Dissemination of Information	Nil	Yes
Indexing and Abstracting Services	Nil	Yes
Xerox	Yes	Yes
Inter-library Loan	Offered Seldom	Yes

Table-10 gives a comparative idea of the various bibliographical and documentation services available from the university library and other library and Information centres. It can be seen that the university library does not provide at all any advanced information services relating to his research work undertaken by the scholars.

Conclusion

The findings of this survey reveal that the information reuirements and the approaches to information by the researchers of humanities and social science departments of Burdwan University varied from one group to another group. The study indicates that periodicals collection is not at all adequate for the present demands for literature by the scholars. Since the scholars demand expeditious and pinpointed service of current information relating to their research programmes, the information products and services available from the library are not sufficient, and the time lag in getting the information by the scholars also hinder their research work.

The study also shows that majority of the scholars are dissatisfied with the existing information products and services of the university library and they rely upon their personal effort and formulate their own strategy for obtaining research data from other organisations and institutions by spending their valuable time and emerge. The steps should be taken to strengthen the bibliographical and documentation services in the university library.

The study further confirms that journal literature are the most important primary sources of information for continuing research programme in the field of humanities and social sciences. But it is found that in view of the rapidly increasing number of titles on any subject together with the increase in price of publication, it is not possible for libraries to acquire all the titles which would satisfy the researchers need. It is, therefore, important to participate in resource sharing programme with other libraries and documentation & information centres to solve the problem of inadequacy of its resources as well as to take necessary steps in order to feed back the information requirements of the research scholars.

It was felf during the survey that the library should be made a vital agency to the campus community so that a better and effective information services to its clientele may be ensured.

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Abstract : The paper discusses the role of information in research. A survey is conducted relating to the information requirements of social scientists and humanists of Burdwan University. Information source consulted, frequency of the use of different type of sources, various approaches to information and the problems of access to information by the scholars are analysed. Suitable suggestions for developing an overall information infrastructure in the University Library are given.

Library as Viewed by Rabindranath : An Evaluation

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Rabindranath Thakur (known in the West or to the readers of his writings through English as Rabindranath Tagore) was a self-taught man. Like many a self-taught man he was a voracious reader. Not only he loved books and libraries, he had clear visions about reading, learning, books, libraries etc.

In April, 1905 (*Baisakh, 1312 BS*) Rabindranath delivered a lecture before a gathering of students under the auspices of Bangiya Sahitya Parisat (Literary Association of Bengal). It was a written speech in Bengali and was later published under the title 'An Address to the Students' (*'Chhatrader Prati Sambhasan'*)[1]. Sahitya Parisat was considered a centre for advancement of Bengal renaissance.In this address Rabindranath asked the students to take up field surveys and collection and preservation of Bengal's history and cultural heritage. This he insisted should be done under the patronage of the Parishat. Regarding the relation between the students of Bengal and the Bangiya Sahitya Parisat Rabindranath envisioned that the Parisat can be defined as the focal source of eternal glorious fame of Bengal and students are emitting glorious radiation out of the same. Founders of the Parisat including Rabindranath tried to establish a system of a library, an archive and a museum. He wanted the band of students to collect information and materials of the country's heritage and local history and input them to the Parisat. Students and others would then use the store of Parisat. The words Tagore uttered about the relation between the Parisat and student-addressees are also applicable to all types of libraries. This will be clear if one replaces the words 'Bangiya Sahitya Parisat' and 'Chhatramandali(circle of students)' used in the article by the words 'library' and 'reader' respectively. The main object is to establish a lasting organic relation between the library and the reader. In whatever name we call the world of informational resources — knowledge world, information world, library world, whatever, a cosmo-unity is necessary between this world of knowledge and inquisitive users around this world. Any library in essence represents a part of that world.

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Rabindranath had unique prudent vision of a *complete man*. According to him making such a man must start early, from the childhood days. The problem, he felt, is that our teachers always compel the students to learn lessons by rote. But generally the human mind does not acquire knowledge only memorizing from books. One can acquire knowledge more easily when he deals directly may be through touch and feeling. One should also learn to learn by oneself, not just from teachers only. So there needs to be various types of resources and various documents through which a person can study and learn. A library or an information centre is very essential for making a complete man through such a learning process. This culture of intellect can only be possible in a library where a reader— a child or an adult—can achieve to learn at ease in a short time whatever he or she wants to achieve according to his or her taste.

Rabindranath wrote two articles on library, knowledge dissemination etc. The first one entitled 'Library' was published in a Bengali periodical '*Balak*' in December1885 / January 1886[2]. The other one was written in December 1928 in two versions in Bengali and English as the Address of the Chairman of the Reception Committee of the All India Library Conference held in Calcutta. Rabindranath could not be present at the conference. The address was read by Hirendranath Dutta. The Bengali version was titled '*Library-r Mukhya Kartavya.*' The English version was first entitled as 'The Function of a Library' (circulated at the time of the conference and published in *Viswa-Bharati Quarterly* in the *Bulletin* part in January 1929). But two other versions were titled 'What makes a library great' (in *Modern Review* in January 1929) and 'What makes a library big' in a collection entitled *The Library Movement: A Collection of Essays by Diverse Hands* edited by S. R. Ranganathan (Madras Library Association, 1929). Ohdeddar has studied the print histories of these two versions of the address (article)[3].

Ohdedar in another article has written[4] that in these two small articles (*Library* in 2 pages and *Library-r Mukhya Kartavya* in 3 pages) all concepts of Rabindranath about library science and service are expressed. Yet in these we find first and last words on the matter. Ohdeddar opines that it would be difficult to find any fundamental thought beyond what have been said by Rabindranath even among the great experts in the subject.

The first article (*Library)* is a lyrical exposition of ideals of a library to motivate the people of Bengali to contribute to the growth of knowledge, its preservation and use of the wealth of libraries. Library holds books, but these are only for the use of people, for enlightening themselves - Rabindranath tried to express this in the article in various ways. He compared the library with something he called *'frozen or silent mega-sound'*. Minds of past and present, living and dead are residing side by side in the library simultaneously.

The inner meaning of the gospel of Upanishad 'শৃণ্বন্তু বিশ্বে অমৃতস্য পুত্রাঃ আয়ে ধামানি দিব্যানি তস্থুঃ' (śṛṇvantu viśve amrtasya putrah aye dhamani divyani tasthuh) is echoed in thousands of languages for thousands of years through the library. A librarian should try to extend this echo beyond the four walls of library so that the main objective of the library can be fulfilled. In this article also Rabindranath told about the renaissance of Bengal.

Only holding some books in a library is not sufficient. If a library of a remote village accumulates books on field theory or *Charvaka* philosophy it will not be useful for the peasants, weavers etc., who are not educated, or who have not studied beyond the primary level. In such a library the librarian should requisition books which will be helpful for the villagers either for their trades or for their knowledge or entertainment. The books also should be written in simple language. Readers should get information to do their work in a more efficient and better manner. A librarian should think before hand what materials are to be acquired and for whom. He is to assist, teach and guide his readers.

The second article[5,6] was an exposition of Rabindranath's views and prescriptions for good library management - how a library can be enriched, how a library can be helpful in all respect. Mere acquisition of some books is not the be-all and end-all of a library. A librarian should be alert and enrich library by making it more useful to the readers. He started the English version in regard to the position of the libraries in the following words:

Most libraries are possessed with the passion for accumulation. Three quarters of their books do not come into use, their overgrown proportion even thrusts into a corner the specially selected few that are meant for being actually used. In our popular parlance, the man of large riches is called a great man. When a millionaire comes into a gathering, they vie to do him honour, an honour not dependent on what he has to give, but merely on what he has. Much in the same way bigness of a library is estimated by the number of its volumes. The facilities offered for their use that should have been its glory, are not deemed necessary for its pride.

That part of its contents which is for the purpose of extensive accumulation may have its usefulness, but the other part which is for constant and multifarious use, gives it its significance. The average librarian, however rarely thinks or takes trouble to bring the largest number of books to the utmost use, because it is always easier to overwhelm the public mind with the mere display of quantitative abundance. It seems that Rabindranath pointed out rather directly the flaws of the librarians. In fact most librarians are affected with these loopholes and it is found in different libraries. This article by Rabindranath shoald be read by all librarians.

The library experts are trying for several years to make the library system easily accessible and affordable to the readers. Researches are going on regarding the easy availability of information through effective cataloguing, bibliography, classification etc. Catalogue codes are being edited and revised. Whatever may be the system, the application of the system should be for effective use by the readers. Rabindranath said this clearly:

In order to bring a library into the fullest use, it is necessary that its contents should be clearly and specifically brought to notice, otherwise it is difficult for the ordinary man to find his way about them, and the library is left as a city of vast accommodation that lacks sufficient means of communication. Those who frequent libraries on some special quest of their own, may manage to make a track for themselves by dint of the urgency of their particular pursuit. But the library itself should recognize its share of responsibility in the matter. Because it has the books, it is incumbent on the library to get them read, for then alone is it justified. It is not enough that it passively permits visitors : its invitation should be active. For, as the Sanskrit proverb tells us 'Tannashtam Yannadiyate' that which is not given is wasted.

In this field there is tremendous responsibility of the librarian. Mere list of books or a catalogue is not enough for a reader. Librarian should be active to make use of the library holdings by the users. A user may get the information he likes through proper channel but may be there are more information which will be helpful and which remain beyond his reach, and here the librarian can help him with total information. This way a library can be used fruitfully. For this librarian should be interested, active, and above all conversant with different types of information and books. Rabindrananth pointed out this and commented without hesitation:

A library, in short, which makes just enough provision that can be placed before its quests for their delectation, with a librarian who has the qualities of a host, not a storekeeper.

The main duty of a librarian is to motivate the general people to use the wealth of library. Rabindrananth wrote:

> The worth of a librarian I would gauge by his power of attracting and looking after such circles, of acting as the intermediary for an intimacy of relationship between reader and library. That is to say on him is cast the burden not only of the books, but of their readers as well, and in the maintaining of both is the test of his efficiency, of the proper discharge of his trust. As to the books themselves, the librarian's duty should not be confined to those that he can collect in his won library, but he must also keep himself acquainted with all those others that are published from time to time, subject by subject.

The main point of Tagore's saying is the interest about books. One has to know about the essence of the book, inner meaning of the book and he/she should have interest for looking at the newly published books and the contents of the book also. This one could do through preparation of up-to-date lists of books on different subjects. On the whole librarian would help the user to locate the new sphere of knowledge as well as motivate the persons to use library and help them to be library minded especially who are not at all interested in library. Librarian should show hospitality like a host, he is not a mere storekeeper. To promote genuine readership is also a genuine duty of a librarian.

Rabindranath is primarily a poet and litterateur, he was convinced from his experience and insight that

> If it be the object ... to stimulate the founding and growth of libraries all over the country, then such object can be best promoted by affording a guide to the books that should be procured; incidentally also thereby assisting the libraries in what should be their main work — not the mere procuring and keeping of books, but actively acquainting their constituents with and making interested them in their contents.

This is not all. Rabindranath as a reader always intimated his friends, relatives, colleagues and even others about the new books he read and sometimes he sent those books to them so that they can read it readily.

Thus following Rabindranath self-assessment and worthy thinking can enrich a librarian and help rejuvenate the readers, users. Then, only then library would live to its proper existence and would be the promoter of creating real complete human beings in true sense.

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Abstract : Rabindranath Tagore (Thakur) was a poet, litterateur and visionary. He wrote two small articles one only in Bengali in 1885 and the other in both English and Bengali in 1928. In the first he had expressed a philosophy and ideal for the library and called upon the people of Bengal to participate in creation, storage and dissemination of knowledge. The second article, an address for All India Library Conference, chalked out in clear terms operational principles and guidelines for library. The author discusses these and notes that another address of Tagore to students in 1905 in a different context can be taken as a pointer in library matters.

Black Bars And White Spaces

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Introduction

A proverb says, "Old order changeth yielding place to new." The change is felt more strongly in the process involving information handling. Libraries need to get adjusted to the changes causing different and more sophisticated demands for information technology.

The task of academic library has become more challenging and complex due to knowledge explosion and revolutions in the field of information technology. Basic medium for recording and transmitting knowledge has been augmented by information technology. Communication media and the creation of computerised information system are opening up new horizons. New technologies have knocked down the walls of the conventional library. Automation of library services is the basic requirement for taping the possibilities offered by current information technology. The bar code technology is one of such possibilities.

The bar code technology has been used for last forty years. It was first used for commercial purpose in 1960 as a method of tracking rail road cars. Since then, bar code as a method of automation has been used extensively in groceries and material handling industries due to the following factors :

1. Bar code labels can be cheaply produced with standard printing technologies;
2. They may be read with great accuracy using moderately priced reading devices; and

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*Librarian

3. Standard symbologies that allow a label printed by one company to be read by any other company have been developed.

The Kentish Town Branch of Camden Public Library is the first library to use bar code technology in 1972.

Definition of bar code

Bar code can be defined as a self contained message with information encoded in the widths of black bars and white spaces in a printed pattern. In other words, it is a series of black bars and white spaces which are used to encode a series of characters. Bar codes are used with computers. Computers can read only 1's and 0's and that is what a bar code is. The black bars represent 1 and white bar represents 0. So bar code is a series of 1's and 0's representing the numbers and/or letters in a form that computers can read easily and quickly.

Symbology of bar code

A code is the combination of numbers and characters that represents an entity. The symbology is the language used to represent the code in a machine readable form. The code represented by a combination of bars and spaces of varying widths is called a bar code symbol.

Library applications

There are many symbologies for bar code. There are more than fifty different coding schemes. Some of them in common use are EAN (UPC) Inter leaved two of five, Codebar, Code 39, label Work, etc. The first three are numeric. There is a facility to enclose -: /in addition to numerals. Code 39, also known as 3 of 9, is alpha and numeric. The code can be of any length and one can enclose all capital letters of the alphabets as well as numerics and additional characters of - $/ + %. Lower case letters can not be enclosed. In Code 39, two asterisks are always there; one at the beginning and the other at the end.

In code 39, bars and spaces are used to encode an individual characters. Each character is represented by 5 bars and 4 spaces. Three of these elements are wide and six are narrow. Forty three characters can be enclosed using Code 39. It is bi-directional. This means that whether an operator scans a bar code from left to right or right to left, the reader can interpret the symbol and transmit the data in proper sequence.

Requirements for using bar code

The following are the basic requirements for implementing bar codes in library applications.

- PC
- Bar code scanners online & off line
- Laser printer
- Communication Software
- Printing & Software
- Books Database
- Laminator
- Membership Database
- Library software

In-house generation

There are many printing technologies available for generating bar codes. Out of these technologies, Dot Matrix and Laser could be used for library application.

Dot Matrix printers are capable of printing fairly low cost and lower quality symbols. Besides they are not abrasion resistant. On the other hand, Laser printers are capable of printing high quality labels that tolerate reasonably rough treatment. But it is very expensive. Since the quality is the dominant factor in library laser printing is considered desirable.

Procedures for generating bar code using laser jet printer.

a) The bar code printing software is loaded successfully into the computer memory.

b) Parameter setting, bar code symbology and density to be selected before printing.

c) Parameter setting is again displayed for making necessary changes, if any.

d) Laser printer is set ready and then print command is typed.

e) Now the bar code representing the data is printed.

Labels for each book, based on accession number are generated on a sheet of paper. Generally, the data on label are simply for the purpose of unique identification and do not contain coding that is descriptive of any characteristics of the item in question. In library terms, the information is equivalent in purpose to a strictly sequentially assigned accession number that does not have any content-related meaning. Most systems have not yet adopted an intelligent coding scheme and may not do so in the near future.

The sheets are laminated and glued. The peel-off labels prepared for each books are then pasted in convenient places of the book.

Ber code is also generated for each member based on an identification number allotted to them and pasted on the identity card.

Circulation System.

Bar code based circulation system gets an edge over manual as well as computer based system. In order to overcome the problems of conventional circulation systems and to achieve maximum efficiency, bar code based system should be introduced.

Merits of the bar code

Accurate data entry is possible with bar code. Data entry becomes very fast. Key entry personnel can enter data at a rate of two to three character per second only. Bar code data entry rate is about 30 characters per second.

- Translation and transposition is not there.
- Error in bar code data entry is very negligible. Statistics reveal that key operator makes one error in every 300 characters entered. When bar code data entry is used, the error rate can be reduced to one in every three million characters.

Bar code reading.

Most online circulation systems use light pens or laser scanner to read and record information as items are charged out to library patrons. In pen type scanner the tip of the pen is moved from one end of the code to the other and with the tip in contact with the surface on which the bar pattern is printed. Laser scanner reads bar code at a distance. The scanner is connected to the computer terminals. Details of the data as represented by the bar code either accession number or membership number are displayed on the monitor.

System in operation

At the outset, the accession numbers of the holdings and identification numbers of the members are converted into bar codes. Provided the circulation module is there in the library software, the operation starts. The borrower comes to the circulation counter with his bar coded card and the bar coded book for issue. The circulation staff will scan the book first. Immediately the details of the book is displayed on the monitor and the cursor will stand at the member number. Next the member card is scanned. The details of the member are also displayed. Now the book is ready for issue. Other functions of the circulati will be taken care of by the software.

Other functions

There are other areas in library services and operations where bar code technology can be used effectively. It may be used for generating user statistics. The stock verification can be done more accurately by implementing bar code system.

Conclusion

While the pattern of bar codes has become a familiar symbol to everybody in the developed countries, the symbol still remains a mystery in our country. The idea of library automation remains incomplete if bar code system is not implemented which is considered as an effective addition to support automation process. Let us try right now to exploit the opportunity of the bar code system keeping in mind the fourth law Save the time of the reader.

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Abstract : The bar code technology was used in library document processing in 1972. The paper highlights the symbology of bar code and its application in library automation, the requirements for using bar code, in house generation of bar code and how it helps the circulation system.

The Technological Environment : Libraries at Cross-Roads

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Introduction

The Society is the library's trustee. The library responds and is responsible to the society. To understand what the library has been, is at present, and may be expected to become, one must look at the nature of the society itself. The society has profoundly changed from an agrarian to an industrial and ultimately to post-industrial society, and now we are in the midst of an information society. The information is at the central position here.

To reach the information age, the human society has so far traversed three major revolutions—agricultural revolution, industrial revolution, and technological revolution. The agrarian society was governed mainly by the activities like mining, fishing, agriculture, and forestry. The society had to pass through the oral stage at that time; since the oral tradition was the mode of storage and transmission of information. In this primitive human Society, a sort of sign language prevailed as a medium of communication. The medium were the drawings and the paintings. The cave dwellers made beginning of what may be called '*writing*'; writing created the world of systematic scholarship. The accumulation of graphic records created a social agency to preserve them for future use. Thus was the beginning of '*libraries*.' The first impulse came from Nineveh, the early library of the Assyrian King, and that impulse was carried so far to computerised libraries of today.

The second stage was the industrial society. These were good-producing societies; the machine was the controlling factor here; time was chronological, methodical and evenly-spaced. It was the world of coordination between men, materials, and machine. The world wars brought in scarcity, and nations were put to hunt for new methods of production, exploitation of new resources, invention of new technologies, and creation of artificial commodities. New modes of transportation and various modern methods of communication made it possible for the world to come closer.

Libraries also didn't lag behind. These continued to grow at an astonishing rate. Some of the prestigious national libraries grew during this period. The urge to develop the public library was also the issue of this era. The increasing acceptance of the "*library idea*" also became vogue during this period.

The current era, the third stage, is the post-industrial, or information society. This society is based on services. The information society is defined by the quality of life, as measured by the services and amenities. The modern society is hungry for information.

In this era, there is a growth of various types of 'information centres' 'information analysis centres', 'data centres', 'referral centres', 'data banks', rather than so called 'libraries'. This implies that 'information' is the key point in this aspect. Information also does not come alone, it seeks the help of technology for its proper and smooth arrival.

What is technology

The word is derived from the Greek 'tekhne', which means "crafts" or "art" and "logiva," which means "the study of". Thus one interpretation of technology is the study of crafting, in which crafting refers to the shaping of resources for a practical purpose. I use the term 'resources' rather than materials, because technology extends to the shaping of non-material resources, such as 'information'.

Technology is often defined as the creation of tools to gain control over the environment. However, this definition is not entirely sufficient. Humans are not alone in their use or even creation of tools. Orangutans in sumatra's Suaq Balimbing Swamp make tools out of long sticks to break open termite nests. The leaf-cutter ant mixes dry leaves with its' saliva to create a paste. Crocodiles use tree roots to anchor dead prey. The tailor-bird uses twigs to make wonderful nests.

What is uniquely human is the application of knowledge-recorded knowledge-to the fashioning of tools. The knowledge base represents the genetic code for the evolving technology. And as technology has evolved, the means for recording this knowledge base has evolved, from the oral traditions of antiquity, to the written design logs of nineteenth century craftsmen, to the computer-assisted design data bases of the 1990s.

One of the primary applications of technology is communication, and language provides the foundation of Home sapiens communication. Communication is a critical survival skill. The other significant point is that technology like the evolution of life forms that spawned it, is inherently an acclerating process. Like the evolution of life-forms, the pace of technology has greatly accelerated over time. The progress of technology in the 19th century greatly exceeded that of the earlier centuries. The continued exponential growth of technology in the first two decades of the 20th century, matched that of the entire 19th century. Today we have major transformations in just a few years time. As one of many examples, the latest revolution in communications-the world wide web-didn't exist just a few years ago.

The transformation

Invasion of technology in the libraries have been at a tremendous rate. We may call the invention of the paper as the first advent of information technology; the invention of the printing press as the second step, and the advent of the computers and communication as the third step of information technology. These have been the starting points of the current technological revolution. Today we have supercompucters, which can do as much as Terra (10^{12}) floating point operations per second (FLOPS) and have 128 bit word length. Pentium II, Pentium III-based PC's have 64-bit word length and their clock speeds take upward jumps every few months. With the progress of semiconductor fabrication technology, the latest memory device developed using the so-called 0.13 micron design rule, has memory capacity of one Gigabyte (10^9 bytes), which is equivalent of storing information contained in 8000 newspaper pages Other storage devices like CD-ROM are already in the picture. Here the contents of the disk is a copy made in one operation for the entire disk. The Digital video Disc in the new technology in the field which allows users' manipulation of a wide range of multimedia images and programming with variety of joystick or mouse. These technological facilities work as the Internet information Servers. Fathomless ocean of information is available today on these servers, providing information about any phenomenon, any time, anywhere in the world.

So there is a great transformation from the paper library to the electronic library, which can be stated also as evolutionary development. In terms of application to traditional library operations and services, librabrianship in developed countries has probably progressed to what could be called a "*post-automation*" environment. This is not to say that all libraries have automated their operations and services, or that libraries will not continue to incorporate new operations and services using existing and new technologies. What it does mean is, librarians seldom debate any longer whether technologies should be applied to library operations and services; it has become a given fact that an intelligent and measured use of technology in libraries is a desirable means to an end.

Gradually since the advent of the computer, the trend in the library automation has been toward greater direct interaction between library user and the technologies employed in the library. Even with online reference database services, the pricing structure in particular, led librarians, to guard these resources closely and place themselves as intermediaries between technology and users.

To understand the reasons for the evolutionary process, or transformation process, we need only look at the problem that exist in the ways and means now used to distribute information. The three most basic problems at present are : (1) the enormous growth of the information produced; (2) the escalating costs : and, (3) the general inefficiency of current process of production and distribution. Today libraries are prepared to take on another role, making use of electronic technologies to produce and disseminate information in many and varied formats. Electronic publishing, microforms, optical video disc, online information retrieval, videotext, services, and advanced telecommunication technologies, such as satellite transmission are aspects of electronic revolution that are to be met by the libraries.

Role of librarians

An important question is, will information in the electronic form put an end to all, but the most popular books, journals, and librarians also? Have librarians to abandon their libraries to go into the information brokerage business, or transform their libraries into electronic information services? What will be the role of the librarians in this technological change?

We do not hear much anymore about "overoming resistance to change." Everybody has accepted by now that "change is unavoidable." In a period of upheavals, such as the one we are living in, change is the norm. The organisations, including libraries, cannot survive, unless there is an attitude of change. In a period of rapid structural change, the only ones who survive are the changed leaders. It is therefore a central 21st century challenge for management that its' organisation becomes a changed leader; and the librarians' role is to change themselves with the technological transformation. The changed leader, i.e. librarian will look for change, will know how to find the right changes, and will know how to make them effective both outside the organisation and inside it. This requires some very important aspects :- (1) policies to make the future, (2) systematic methods to look for, and to anticipate change; (3) the right way to introduce change, both within and outside the organisation, (4) policies to balance change and continuity.

To survive, the librarians need to anticipate the future and to mould their roles according to need. Users friendly began to meet the library technology hands-on with online public-access catalogues, and they went on easily to online union catalogues and reference databases on CD-ROM or on local systems. Increasing provision of dial-in-access to the library from home and office microcomputers has further placed the emphasis on accommodating the user through technology.

Libraries of the early 1990s existed in an interesting environment The media they collected and technologies they employed were converging. Text, sound and image were being integrated into single packages of information, while online access, distributed processing, optical media, and communications technology were coalescing to form new possibilities for the delivery, storage and use of information. Librarians will continue to collect and lend books. They will continue to purchase, upgrade and replace automated systems that facilitate some traditional library functions. But they are also bound to be at the centre of new ways of presenting and communicating knowledge, and their use of technology is likely to continue in the direction of increasingly serving the interactive needs of information users.

The human intermediaries

Alfred North Whitehead, once opined, "we do not want such information scientists to be like the Harvard and M I T graduates who do not know how to count or how to read." The human intermediary between the store and the user is very urgent, who responds to each user's needs specifically, and adjusts the access, and interprets the store accordingly. It will be a very dangerous and deleterious state of matter if we leave everything to the machine. The machine should be under our control, rather we being slave of the machine.

Computer programmes can anticipate certain needs, and provide certain paths to retrieval, but they can't yet interact at the individual human level. Thus one can buy or fit in a program which will make sure that we know whether it is "i.e" or "ei" when we spell believe, but can't tell us whether we want "affect" or "effect" at a given point in a given sentence. There are many programs which helps us, and many more sophisticated ones will be developed, but as long as they are pre-set, they require that the questioner know how to frame his or her request to fit the predetermined operation of the machine, or it will reject the query. This is parallel with the more traditional library tools of information access. Our catalogues, our bibliographies, our indexes are preprogrammed too, and require that one formulates the right questions in order to make them come up with the right answers. Does any one believe that since most of our users know how to read, none of them has any need of the librarians assistance in effectively using these tools? Can there be any assumption that there will be no need of the librarian in the near future because everyone will know how to use the computer?

The answer is "No." Libraries provide the human contact in addition to the sources themselves. And as the sources multiply, and become more complex and require more elaborate procedures for getting the specific information wanted out of the tremendous store of information available, the need for the human intermediary will become even greater.

Not only this, the reference interview takes into account, not just the first statement of the question, but all the other clues of speech, gesture, and possible misunderstandings as they develop—the symbols and signs making up human contact, and judgement, and unpredictable inspiration, deriving from previous knowledge and experience. Where is this sort of judgement or motivation we would search in the machine? The machine has limitations. The librarians have the upper hand in that they not only have skills, but motivation, search and delivery, they tend to be people-oriented too.

Conclusion

The need at present is overcome the technophobia of the librarians. Many librarians, rather than viewing themselves as information people, view themselves as book people only. They limit themselves to the print-on-paper medium. Why should it be so? Is it lack of familiarity with other information media?

The librarians should not limit themselves to the book as the only medium; if they do this they would be termed as "*bibliomystics*", rather than informationprofessionals. In this era of modernization of information services, they must be ready to adapt to the opportunities, changes, and challenges presented by the new information society. They are the middleman between the technology and the users; and they should understand this very well. The librarians should be ready, as information managers, to know the tits and bits of information technology and lead the way; otherwise they will be pushed aside or even trampled and ultimately perish in this overload.

Let us rise to the significant challenge and opportunity. The tools to accomplish almost everything we want to do are now at hand. We must be ready to employ them. We should rise and say that, "we have met the future and it is us." Let us conclude by quoting from Shakespeare, "we know what we are, but know not what we may become."

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Abstract : The technological development has become prevalent in the post industrial or information society. The transformation from paper library to electronic library is an evolutionary development. In this perspective, the role of librarians or intermediaries can not be wiped out. From the discussions made in this paper, the author wants to find out the exact path of the librarian in the technological environment of the present society and points out possible solutions to arising problems.

Metadata : An Overview

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Introduction

For the purpose of the identification, description and location of networked electronic resources a structured data have become necessary for describing the attributes, elements and characteristics of digital web resources to facilitate and support more indexing and retrieval information on www (Houdgins, Jean, Grace Agnew, and Elizabeth Brown. 1999. *Getting mileage out of metadata : Applications for the library.* Chicago : American Library Association). Due to divergence in information space the Internet and www have been emerged. At the same time there arise some problems associated with creation and management of digital resources on web. To solve some of the problems associated with creation and management of digital resources on web. To solve some of the problems created by the problem of information overload and also how to deal with more quality in storage indexing and retrieval of information systems, an initiative was taken in 1995-the Dublin Core Workshop Series together an informal group of librarians, network people and content specialists to discuss these issues. In this regard the development of metadata schemes was considered to solve the storage and retrieval of documents and objects on the net. *Traditional cataloguing is performed in libraries uses metadata to produce bibliographic records. This bibliographic record is viewed as a document representation or a document surrogate of the object or document*

Metadata is a structured description of the content, quality, condition, usage, and other characteristics of data. They enable users to discover, locate, understand, and evaluate data. They also enable administrators to manage data and control access to them. Metadata may describe how, when, why, and by whom a particular data object or set of data was collected or created, what its content is, how it is formatted, and the conditions for its use[1].

Some definitions of metadata :

1. Metadata pl. n. (used with a sing. or pl. verb) 1. Surrogate information about or related to a resource, 2. A structured, encoded surrogate *Definition of surrogate :* The OED offers : 1. A person or (usually) a thing that acts for or takes the place of another; a substitute.
2. Data about data. Metadata describes how and when and by whom a particular set of data was collected, and how the data is formatted. Metadata is essential for understanding information stored in data warehouses—Webopedia.
3. Metadata is an abstraction from data. It is high-level data that describes lower-level data—Briefing paper : What is metadata. (Computerwire.com)
4. In data processing, meta-data is definitional data that provides information about or documentation of other data managed within an application or environment. For example, metadata would document data about data elements or attributes, (name, size, data type, etc.) and data about records or data structures (length, fields, columns, etc) and data about data (where it is located, how it is associated, ownership, etc.)—Free On-line Dictionary of Computing.
5. Information about data, or more specifically, the descriptive information provided in meta tags in an HTML or XML document header about the document.—Glossary of Interent Terms.
6. Metadata is an encoded description of an information package (e.g., an AACR2 record encoded with MARC, a Dublin Core record, a GILS record, etc.); the purpose of metadata is to provide an intermediate level at which choices can be made as to which information packages on wishes to view or search, without having to search massive amounts of irrelevant full text.—Arlene Taylor (*www.oclc.org*) Metadata can be used for a number of purposes such as :

- Resource identification and location
- Resource documentation
- Resource selection, evaluation, and assessment
- Improving the quality and quantity of search results i.e. recall and precision
- Control re-use
- In e-commerce to encode prices, terms of payments etc
- Images, sounds etc
- User profile
- Spatial data

Metadata coalition and environment :

The descriptive information Meta-data supplies allow the user to locate, evaluate, access, and manage online available learning resources. Describing learning resources (whether materials, activities, people or enterprises) digitally is similar in the physical world to attaching a label to an object, such as a can of peas or a package of light bulbs. The label provides information about the contents of its container without having to actually open the container....Examples of Meta-data for learning materials are the title, the author, the targeted learning level, and the educational objectives of the material....Meta-data is distinct from, but intimately related to, its contents...Overall, Meta-data serves as a complement to its contents and reflects the content's attributes to interested users. The Meta-data Coalition regroups vendors and users allied with a common purpose of driving forward the definition, implementation and ongoing evolution of a metadata interchange formate and its support mechanisms. The need for such standards arises as meta data, or the information about the enterprise data emerges as a critical element in effective data management.

In the Interent environment metadata involves commerces and services as well as objects, it has more functions than description and resources discovery:

- intellectual property rights including the contractual terms related to the document's use and distribution
- electronic commerce to encode prices, terms of payment, etc.
- content rating to disclose the nature of a particular page's contents which can be used in filtering content so that, for example, parents can block inappropriate material from children digital signatures : can you trust this document?

- privacy issues : what information do browsers collect when you visit? what information are users willing to disclose about themselves when visiting a Web site?

Metadata is means of assigning descriptive tags to government information so that it is easily searchable and retrievable by clients from any electronic or online tool, be it an Internet connection through their home or business PC, via a public kiosk or by using a call centre as the middle access environment (the Government Information Centre is a good example of this environment).

Some characteristics of metadata :

- It is readable by both humans and machines.
- Metadata takes a variety of forms, both specialized and general, and may be part of a larger framework.
- New metadata sets will develop as the networked information infrastructure matures.
- Different communities will propose, design, and maintain different types of metadata—kathleen forsy the and Diana Brooking, two librarians from the University of Washington Libraries, gave an excellent presentation at the Online Northwest Annual Conference.

There are several initiatives to develop metadata schemes; such as :

- Bib Tex
- Categories for the Description of Works of Art (CDWA)
- CIMI (Computer Interchange of Museum Information)
- Dublin Core (DC)
- Encoding Archival Description (EAD)
- FGDC-Content Standards for Digital Geospatial Metadata
- Government Information Locator Service (GILS)
- ICPSR SGML Codebook Initiative
- LDAP Data Interchange Format (LDIF)
- MARC (Machine Readable Catalogue, General overview)
- USMARC
- UKMARC
- UNIMARC
- Summary Object Interchange Format (SOIF)
- Text Encoding Initiative (TEI) Independent Headers

- Uniform Resource Characteristics/Citations (URCs)
- Warwick Framework

We discuss briefly about some of the widely used metadata formats :

- DC : a metadata initiative that is being coordinated by OCLC. It is an international standard for describing electronic information resources. DC is a simple resources description format and consists of 15-element set of descriptors, each repeatable, non-mandatory. Each element has a limited set of qualifiers, attributes that may be used to refine an element. Data elements are title, creator, publisher, subject, description, contributor, date, type, format, identifier, source, language, relation, coverage and rights. Dublin Core, which was conceived in 1994, now has reached standard status-W3c, ISO, and DC is widely used in several projects around the world. The Dublin Core Metadata Initiative is an open forum engaged in the development of interoperable online metadata standards that support a broad range of purposes and business models. DCMT's activities include consensus-driven working groups, global workshops, conferences, standards liaison, and educational efforts to promote widespread acceptance of metadata standards and practices.

- TEI : A metadata set for describing resources in humanities and literature. TEI is a joint project sponsored by three professional bodies: the Association for computers and the Humanities, the Association for computational Linguistics, and the Association for Literary and Linguistic Computing. The project was funded jointly from the US National Endowment for the Humanities and the European Union 3rd Framework Programme for Linguistic Research and Engineering. At present the project has two years more funding from the US for tutorial and dissemination work. The academic community in the US and europe have been involved in the project forming a number of committees to consider different aspects of the encoding guidelines. The TEI initiative aimed to reach agreement on encoding text across a range of disciplines. The TEI Guidelines, despite their origins in the humanities and linguistics were designed to form an extensible framework, which could be used to describe all kinds of texts.

- GILS. The GILS was setup by the US Federal Government in order to provide the general public and its own employees with a means for location useful information generated by the many government agencies. As such its constituency of use is very broad; literally anyone is likely to be able to search for resources using GILS and many different agencies are likely to use a variety of staff to generate their part of the overall GILS framework.

- MARC originated in the 1960s as a means of exchanging library catalogue records. MARC was a response to the need for a standardised format for co-operating libraries to exchange and share catalogue records. MARC format provides a means of integrating metadata into existing systems. National bibliographies, bibliographic record supply agencies, and individual libraries all have large collections of existing MARC records and want to integrate 'Internet descriptions' into their systems, and for them MARC is an obvious choice as it means their basic retrieval software can still be used to offer an integrated solution. The problem is that there is a considerable time lag between changes to MARC format and changes appearing on the library are OPAC, as this requires upgrades to the library's existing library management software. 'MARC standard' ISO 2709 *Format for bibliographic information interchange on magnetic tape* only governs record structure or encoding, it does not prescribe the content of the record withing that structure.
- UNIMARC conforms to the ISO 2709 standard and to ISBD standards. UNMARC: (the Universal MARC Format) was developed and published in 1977. The primary purpose of UNIMARC is to facilitate the international exchange of bibliographic data in machinereadable form between national bibliographic data in machinereadable form between national bibliographic agencies, but in the UNIMARC manual, first published in 1987, it was stated explicitly that UNIMARCs objectives would not only be conversion, but also a model for the development of new machine-readable bibliographic formats. The latest edition of the UNIMARC Manual (2nd edition) was published in 1994. A Draft version of the UNIMARC Guideline 3 for computer Files was issued in June 1995. These guidelines result form meetings of the IFLA Permanent UNIMARC Committee and the requirements of the International Standard Bibliographic Description for Computer Files, ISBD (CF). A new draft to this Guideline is expected in July 1996. (The changes in the draft of the 2nd ed. of ISBD (CF), now being circulated for comment, will be applied to UNIMARC).

The ultimate goal should be to attach metadata to every on-line resource but the metadata remain invisible to the users. Users could initiate searches using it. One could envision a pull-down menu with "Examples", "Explanations", "Exercises", and "Applications" as choices. The student would make a choice and behind the scenes the software would.

- Look up metadata associated with the particular object being studied,
- Look up metadata from a profile of the users using the software, and
- Combine this metadata to search for what the user needs.

Each search could include parameters (such as the grade level) that are specific to the student as well as to the educational resource. If the student is using the equivalent of an on-line text, the metadata enabled search engine might also give more weight to resources form the same "text". Thus, when the student looks for exercises, the relevant exercises in the text would be displayed first, although others might also appear. Metadata is an approach that can work with a fuzzy understanding to what is being sought. In a learning situation, we should *expect* the user to have a fuzzy understanding.

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Abstract : This paper depicts a general picture of metadata which is now being recognised as a solution to the problems of storage and retrieval of documents and objects on the net.

College Library Automation in Calcutta

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Introduction

The pattern of modern library and information systems and services has been changed because of the continuing exponential growth of literature on various existing subjects as well as various newly interdisciplinary subjects, which are coming out not only in the traditional book forms but also in other non-book forms. The volume of publication will Continue to grow which creates problem for selection, acquisition, organisation and service in libraries. On the other hand, it is essential to all the libraries to fulfil the demands of the users by generating, collecting, retrieving and disseminating the information through the creation of bibliographic database of the libraries.

Sinkage of budget creates a hindrance to the libraries to collect all the library materials belonging to any particular subject. The key requirement in such age is that libraries should be flexible. This will be manifested in all facts of librarianship; library buildings, systems for subject representation, forms of publication and the reader services provided for the library clientele.

The computer has a central role to play in such future library systems. As a reliable, competent, accurate and cheap manipulator of library information, it can bring to fruition many idealistic concepts about flexible library services. In that it has the capacity to free human beings from much of the repetitive labour that is a necessary concomitant to library work, it can also give us the opportunity to provide personal service to real people. Computer is an electronic automatic machine that receives, stores, processes and presents information in desired format.

In the colleges, teaching and learning process which is going on, depends mostly upon the documents present in their libraries. Again during this process new thoughts will be generated, which may come to the library in the form of new document. Development of science and technology also plays a vital role for this. Demands of the users are coming out day by day in various forms. Therefore it is difficult for college librarians to satisfy all the requirement of their users through manual procedure. Hence 'library automation' is the hot context for the college libraries to survive properly in the age of 'electronic revolution'.

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Definition of the terms 'automation' and 'library automation'

According to the New Encyclopaedia Britannica (15th ed, V.14, p-548) the term 'automation' was coined in the automobile industry about 1946 to describe the increase use of automatic devices and control in mechanized production lines.

In general usage, automation can be defined as a technology concerned with performing a process by means of programmed commands combined with automatic feedback control to ensure proper execution of the instructions. The resulting system is capable of operating without human intervention. The development of this technology has become increasingly dependent on the use of computers and computer related technologies.

The term 'library automation' (According to ELIS, V.14, p.338-) is the use of automatic and semiautomatic data processing mechanics to perform such traditional library. Although these activities are not necessarily performed in traditional ways, the activities themselves are those traditionally associated with libraries; library automation may thus be distinguished from related fields such as information retrieval, automatic indexing and abstracting and automatic textual analysis.

Needs for library automation

The need for automation is emphasised because of the following factors :

Information explosion

The bewildering proliferation of information due to the influence of research and other technological advancement in all fields particularly in science and technology.

Inflation of library materials

The generation of various physical forms of publication, such as periodical articles, seminar reports, conference proceedings, theses, survey and project reports, patents, standards, specifications, graphic record, field works, state-of-the-art report etc. is reponsible for inflating the library materials very largely.

Decreasing library budget

Now a days, the amount of library budget is too small in comparison to the ever increasing rate of the newly documents present in any particular subject. Hence to keep update the collection of various subjects, is a tremendous job for any librarian working in a particular library.

Limitation of space

It creates another problem to any library. Library buildings, in most of the cases, has no provision to extend its size both horizentally as well as vertically due to serious space problem in side by. For this they should depend upon the documents present in other libraries.

Increase awareness among the users about resource sharing

For a particular library it is very difficult to acquire all the documents of all the subjects. But if their database is in their computers and all the libraries are interconnected, than easily through sharing of resources among themselves, users of a particular library can fulfil their requirements.

Universal bibliographic Control

Sharing the resources among the libraries, can be easily done if all the libraries prepare their bibliographical database using the same standard formats. Only than, the UBC should be possible.

Global impact and growth of library networks

Different type of networks among the libraries is evolved now-a-days. The objectives of these networks are fulfilled only if at the preliminary stage, all the libraries should automate in their functions and services.

Operational advantages

Through automation the following advantages should acquire

a) offer flexibility
b) speeds up processing
c) greater accuracy, efficiency, consistency and improved work control
d) reduces repetitive clerical work
e) permits ease of bibliographic control, checking and updating
f) permits improved budget control.

Areas of library automation

Library automation has mainly two aspects namely

House keeping routines and information storage and retrieval

The house Keeping routine includes acquisition and ordering work, cataloguing, circulation control, serial control and keeping of records statistics for over all management purpose.

The application of computer to information service comprises generation and collection of information, information retrieval, current awareness services, selective dissemination of information, computerized databases, information transfer and distribution etc.

Scope of the research work

The college libraries of calcutta University which are situated in Calcutta are included into this research work. It can also be noted that the colleges which are imparting academic courses are only included and all the colleges which are imparting professional or vocational courses are excluded from this research work.

Methodology

The study is based on both survey method as well as interview method. The 14 Colleges of Calcutta University present in Calcutta are covered in this study. A structured questionnaire was prepared to collect the relevant information for this survey and these questionnaires are distributed to the 14 colleges. In times of Collecting the answered questionnaires an interview was also undertaken to have further relevant information as well as to clarify any doubt there in from each college. Now the obtained information from the questionnaires as well as information from the interview are tabulated, analysed and finally inferences are drawn.

Findings

Number and status of the library staff in colleges

Table 1. Gives the number and status of the 14 Colleges in Calcutta. The table also depicts that only one library has 4 librarians of which two of them possess the computer proficiency. Among other 13 colleges, there are 2 Librarians in 3 colleges and one librarian in nine colleges and no librarian in a college. Table 1 also reveals that out of these 13 colleges, only 6 colleges have the librarians posses the computer proficiency.

Table 1 : Number and status of the library staff in the colleges

Sl. No.	No. of Librarians/ Asstt. Librarians	No. of other staff	Professionally qualified	Computer proficiency	Age	
					Below 35yrs	Above 35 yrs
1	4	14	4	2	4	14
2	1	3	1	1	3	1
3	2	3	2	0	1	4
4	1	3	1	0	0	4
5	2	4	3	2	1	5
6	1	3	1	0	0	4
7	2	4	3	0	0	6
8	1	2	1	1	0	3
9	1	2	1	0	0	3
10	1	5	1	1	0	6
11	1	3	1	0	0	4
12	1	3	1	1	0	4
13	0	1	0	0	0	1
14	1	3	1	1	1	3

Information regarding library clientele and holdings

Table 2 indicates the number of students, teaching staff and other library users and gives the true picture of the collection of the college libraries. Most of the colleges have the books only. Only 8 colleges have the periodicals and 3 collages have non-book materials.

Table 2 : Information regarding library clientele and holdings.

Sl.No	No.of students	No.of teaching staff	Other library users	Books	Journals	Non-book materials
1	4000	115	50	1,25,000	0	
2	5000	101	46	42713	10	5
3	3000	96	20	21000	14	50
4	1650	125	100	25683	2	50
5	1500	85	30	55000	2	0
6	1500	65	12	20000	0	0
7	2000	65	40	22000	10	0
8	1200	40	30	13000	2	0
9	2000	60	35	12000	0	0
10	1500	48	45	21000	0	0
11	1100	45	40	27000	4	0
12	1500	80	35	25000	0	0
13	192	8	15	3000	0	0
14	1000	45	4	23000	0	0

Present satus of library computerisation

Table 3 reveals that among the 14 College libraries, 4 have the computers and printers and work under Dos/Windows or Msoffice environment and only one library has already started computerised database of their library holdings.

Table 3 : Present status of the library computerisation

Sl. No.	No.of computers	No.of printers	operating system	No.of records in the computer database	No. of output services
1	1	1	DOS/Windows	0	0
2	1	1	Windows/ Msoffice	500	2
3	0	0	0	0	0
4	0	0	0	0	0
5	2	2	Windows 95	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	1	1	Windows 98	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0

Table 4 : Library budget/expenditure in the financial year 1999-2000

Sl.No.	Books (in Rs.)	Journals (in Rs.)	Furniture (in Rs.)	Computer hardware/soft ware (in Rs.)	Others. (in Rs.)
1	4,50,000	0	0	70,000	0
2	60,000	10,000	0	1,50,000	6,000
3	2,00,000	0	0	0	0
4	1,00,000	0	0	0	0
5	3,00,000	0	0	40,000	
6	45,000	0	0	3,000	0
7	45,000	2000	15000	0	0
8	25,000	0	0	90,000	0

Sl.No.	Books (in Rs.)	Journals (in Rs.)	Furniture (in Rs.)	Computer hardware/software (in Rs.)	Others. (in Rs.)
9	60,000	0	0	0	0
10	75,000	0	0	0	0
11	90,000	50,000	40,000	0	0
12	40,000	0	0	0	0
13	45,000	0	0	0	0
14	35,000	0	0	0	0

Library budget/expenditure in the financial year 1999-2000

Table 4 reveals the details of the budget/expenditure of 14 colleges for the financial yr. 1999-2000. Maximum grant is alloted for books only and a few for journals and fournitures. Only five blibraries have the grant for computer installation, but still now only four libraries have installed the computer.

Conclusion

The college is an important link in our educational system and the libraries play a vital role in the meaningful development of higher education and to some extent forming the personality of the youth. Education today plays great emphasis on the use of libraries especially in the field of higher education.

The INFLIBNET programme has already been started by the UGC since 1991 for providing a channel to the academicians for exchange of information form sources within the country and abroad. To achieve this, as a part of academic institution college libraries should implement automation in their services.

In Calcutta, a few of the colleges have installed computers in their libraries, but still now, most of them are used for official purpose, rather than for library services. It is hopeful to us that, most of the college authorities have already started the preliminary planning for automation in their library services. But the following are the common factors which create problem in most of the colleges :

a) Limited number of librarians/Asstt Librarians,
b) Limited number of computer literate librarians/Asstt. Librarians

c) Limited number of library staff
d) Limited number of trained library staff
e) Limited space in the library
f) Sinkage of budget etc.

Therefore, if government should support financially for i) purchasing the computers ii) creation of the necessary atmosphere for implementing the automation programme iii) recruitment of external agencies for preparing the database and finally iv) arrangement for practical training of librarians/Asstt. Librarians and other library staff, then the implementation of automation in college libraries will run in future effectively and efficiently.

In the age of electronic revolution information plays a vital role in education and research field. Therefore, to function properly College libraries should be the information centre and in near future it will be the same, if all the colleges implement automation in their library services and only then the objectives of the INFLIBNET will be fulfilled.

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Abstract : The paper presents definition, needs and areas of library automation and then the present scenario of library automation/computerization in 14 colleges situated in Calcutta on the basis of a survey. some suggestions are also put further.

Internet Information and Internet Resources

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Introduction

The increasingly powerful, complex, and continually changing nature of literacy and learning with new technologies for information and communication provided us with new challenges and new opportunities. The Internet opened up a wonderful window to new information resources.

History of internet

J.C.R. Licklider[1] of MIT (USA) in August 1962 envisioned a globally interconnected set of computers through which everyone could quickly access data and programs from any site. Licklider was the first Head of the computer research program at DARPA (Defense Advanced Research Projects Agency).

In DARPA, Leonard Kleinrock[2,3,4], a researcher in 1964 convinced L. Roberts[5] of the theoretical feasibility of communications of using packets rather than circuits, which was a major step along the path towards computer networking. The other key step was to make the computers talk together. In late 1966 Roberts put forth his plan for the "ARPANET".

In December 1969 ARPA (Advanced Research Projects Agency) went online connecting four major U.S. universities. Fund came from the Pentagon. Designed for research, education and government organisations, it provided a communications network linking the country. Four host computers were connected together into the initial ARPANET.

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More computers were added quickly to the ARPANET during the following years and in December 1970 the Network Working Group finished the initial ARPANET *Host-to-Host* protocol, called the Network Control Protocol.

Protocols are set of rules and procedures developed to allow a number of messages to utilise a channel without conflict. Protocol establishes instructions for the transmitting computer about how to frame the data in each message and about message sequencing.

The first public demonstration of this new network technology was held in October 1972. It was also in 1972 that the electronic mail was introduced.

So the original ARPANET grew into the Internet. Internet was based on the idea that there would be multiple independent networks beginning with the ARPANET as the pioneering packet switching network, but soon included packet satellite networks, ground-based packet radio networks and other networks. The Internet embodies a technical idea, namely that of open architecture networking. It was Robert Kahn[6] who first introduced the idea of open-architecture networking shortly after having arrived at DARPA in 1972. The program was called "Intercepting". A reliable end to end protocol that could maintain effective communication in the face of jamming and other radio interference, or withstand intermittent blackout such as caused by being in a tunnel or blocked by the local terrain was required. Kahn first contemplated developing a protocol local only to the packet radio network, since that would avoid having to deal with the multitude of different operating systems.

Packet Switching network is a network that transmits data in a form of packet. In packet switching, messages are split into number of packets. Messages are split at the source host and reassembled at the destination host Each packet transmission is independent of the others. The packets of a single message may travel via different routes and arrive at the destination with different delays. This may lead to the situation where the packets of the same message arrive out of sequence at the destination node. Every packet should have complete address information, destination identifier, source id, (identity tag or label) message id, packet id, in addition to the actual user data.[7]

In an open-architecture network, the individual networks may be separately designed and developed and each may have its own unique interface, which it may offer to users and/or other providers. Each network can be designed in accordance with the specific environment and user requirements of that network.

Kahn decided to develop a new version of the protocol, which could meet the needs of an open-architecture network environment. This protocol was called the Transmission Control Protocol/Internet Protocol (TCP/IP). IP handles the movement of data between host computers. TCP manages the movement of data between application.

At the same time that the Internet technology was being experimentally validated and widely used amongst computer science researchers, the U.S. Department of Energy (DoE) established MFENet for its researchers in Magnetic Fusion Energy, whereupon DoE's High Energy Physicists responded by building HEPNet. NASA Space Physicists followed with SPAN, established CSNET for the (academic and industrial) Computer Science community with an initial grant from the U.S. National Science Foundation (NSF). AT&T's free-wheeling dissemination of the UNIX computer operating system spawned USENET, based on UNIX' built-in UUCP communication protocols.

With the exception of BITNET and USENET, most other networks were purpose-built - i.e., they were intended for, and largely restricted to, closed communities of users. Alternate technologies were being pursued in the commercial sector, including XNS from Xerox, DECNet, and IBM's SNA. It remained for the British JANET (1984) and U.S. NSFNET (1985) programs to explicitly announce their intent to serve the entire higher education community, regardless of discipline. In 1985, Dennis Jennings[5] came from Ireland to lead the NSFNET program. He worked and helped NSF make a critical decision - that TCP/IP would be mandatory for the NSFNET program. When Steve Wolff[6] took over the NSFNET program in 1986, he recognized the need for a wide area-networking infrastructure to support the general academic and research community, along with the need to develop a strategy for establishing such infrastructure on a basis ultimately independent of direct federal funding.

By the mid-1980s there was a significant market for Internet-based products. In the 1990s commercial services came up, a direct consequence of the NSFNet initiative, which started in 1986 as a 56 Kbps network based on LSI-11s with software developed by David Mills[8]. Mills called his NSFNet nodes "Fuzzballs."

In 1990 a conscious effort was made to link in commercial and nonprofit information service providers, and this has also turned out to be useful. Among others, Telebase, Dialog, CARL, the Library of Medicine, and RLIN came online.

Internet

The ***Internet***, according to the official definition of the **Webopaedia**, is "a global network connecting millions of computers."

The Internet has revolutionised the computer and communications world. The invention of the telegraph, telephone, radio, and computer set the stage for this unprecedented integration of capabilities. It is a world-wide broadcasting capability, a mechanism for information dissemination, and a medium for collaboration and interaction between individuals and their computers regardless of the geographic location.

The Internet is a worldwide collection of computer networks, co-operating with each other to exchange data using a common software standard. Through telephone wires and satellite links, Internet users can share information in a variety of forms. The size, scope and design of the Internet allows users to:

i. Connect easily through ordinary personal computers and local phone numbers;

ii. Exchange electronic mail (E-mail) with friends and colleagues with accounts on the Internet;

iii. Post information for others to access, and update it frequently;

iv. Access multimedia information that includes sound, photographic images and even video;

v. Access diverse perspectives from around the world.

The **World Wide Web,** (or Web) invented by the British Physicist Tim Bernes Lee, is one facet of the Internet consisting of client and server computers handling multimedia pages. One of the most prevalent misunderstandings arises from using the words "**Internet**" and "**World Wide Web**" interchangeably. There is a difference between the Internet and the World Wide Web. The Internet is a global network connecting millions of computers, that all work together to share information. The **Web** is a system of Internet servers that supports a collection of documents that are written and formatted using the same type of programming language, called Hypertext Mark-up Language, or HTML. These documents, or Web Sites, can be retrieved to enter a Web Site address in the browser, to send a Hypertext Transfer Protocol HTTP (**http://**) command to the Web server directing it to find and transmit the requested Web page.

What Kinds of information are available?

In addition to text documents, the Internet makes available graphics, and even files that contain digitised sound and video. Through the Internet, one can download software, participate in interactive forums where users post and respond to public messages, and even join "chats," in which many users can type messages at the same time that are received by the chat participants instantly.

How do people use the internet?

i. Sharing research and business data among colleagues and like-minded individuals;

ii. Communicating with others and transmitting files via E-mail;

iii. Requesting and providing assistance with problems and questions;

iv. Marketing and publicising organisations' products and services;

v. Gathering valuable feedback and suggestions from customers and business partners.

Electronic mail (E-mail) is a messaging system that allows sending messages, reports, etc to users on the Internet. It is the communication of textual message via electronic means. The communication is user to user. Being a person –to- person communication system it is cheaper than telephon conversation. It permits communication between two parties actually bein present simultaneously. Privacy is also ensured as the mail is delivered to individual mail box and which can be opened only by the intended recipient.

Email is cheaper and faster than a letter, less intrusive than a phone call, less hassle than a FAX. Using email, differences in location and time zone are less of an obstacle to communication. There is also evidence that email leads to a more egalitarian information structure.

Electronic communication, because of its speed and broadcasting ability, is fundamentally different from paper-based communication. Because the turnaround time is fast, more conversational than traditional paper-based media. In a paper document, it is absolutely essential to make everything completely clear and unambiguous because the reader or the receiver may not have a chance to ask for clarification. With email documents, the reader or the receiver can ask questions immediately. Email thus tends, like conversational speech, to be sloppier than communications on paper.

Email also does not convey emotions nearly as well as face-to-face or even telephone conversations. It lacks vocal inflection, gestures, and a shared environment. The correspondent may have difficulty telling if one is serious or kidding, happy or sad, frustrated or euphoric. Sarcasm is particularly dangerous to use in email.

Internet relay chat (IRC), is a system for sending public and private messages to other users in "real time"—i.e., the message appears on the recipient's screen as soon as it is typed.

URL (Uniform Resource Locator)

A URL is the Internet address for a web document or other file. A typical URL looks like this: http://www.britcoun.org. Web users can retrieve documents either by manually entering URLs or by selecting links that contain a URL.

Using the internet

Start up your computer, and make sure that your modem is on and connected to a telephone line.

Initiate the connection. Many access software packages will display the status of the connection process, which generally takes between 15 and 30 seconds.

Depending on the speed of your modem and the size or complexity of the page you are accessing, the time necessary to completely load a page ranges from a few seconds to several minutes.

To access and use a Web index, you have to perform the following steps:

i. Logged on to the Web, type **http://www.metacrawler.com/** (for example) in your browser's URL entry field.
ii. Press ENTER on your keyboard.
iii. This will take you to "**metacrawler**", one of the most popular Web indexes. Underneath the **metacrawler**! Logo, you will see a blank search entry form, as well as hotlinks of site categories.
iv. Click on one of the category topics and follow the categories until you reach a site that matches your interests.... *OR.* Click your mouse in the entry form. This will place a blinking cursor in the form.
v. Type one or more words pertaining to information you'd like to locate on the Web.
vi. Click on the SEARCH button to the right of the entry form, or press ENTER on your keyboard.

vii. After a few seconds, **metacrawler** will return with a list of links that match your search criteria. The more specific your criteria, the fewer and more specific links you will see.

viii. Scroll down the page and select the hotlinks to a page that you'd like to explore.

Finding your way around

Now that you have connected on the Internet, you are probably wondering how to get to all those great resources that you have been hearing about. There are several strategies for moving about the Web the basic method of accessing a web site is to type out the URL address of a site into the entry field of the browser. For this one must know exactly where to go exactly and then type in the precisely in order to get there. Some browsers can compensate for some typing (allowing to omit the http:/at the beginning of the URL) but some URLs are too complicated for a browser to second-guess. A web site reflects the personality and individuality of the organisation it represents on the www. For people in different parts of the world, your organisation's website is the only contact point. But setting aside design, there is one more important aspect, the ***content***. How to lay out the information on your Web site in such a way that it is easy and pain less for people to browse through your site.

With the objective clearly defined we need to decide on what kind of information should the website carry and to organise the different kind of information in a clear and logical fashion. This logical structuring is important because of the nature of the linking on a web page one can only see one page at a time. It is advisable to show this structure to an outsider and see if it makes sense in the way you intended. Quite often what is crystal clear to your colleagues may be incomprehensible to an outsider.

Homepage

Every website has a home page. This can be regarded as the response or the reception area. This is where you receive your cyber visitor, assure him or her that the right place has been reached, and direct him on his way to explore your organisation or fulfil whatever objective he arrived with. Homepage is the first page that comes up on entering your address. This is the entry point of your site. This should have the objective of your site clearly stated. It should link in an easily comprehensible way to the other sections of your site. The contact information for the organisation would be convenient for a new viewer to get a better understanding of the site and also gives the site credibility. This is the place for you to declare your copyright to any proprietary information that you may be putting out. Or you may want to encourage people to use the information in suitable ways and thus spread your message. A good home page is easy to use, easy to move around in, and visually pleasing. The foundation of a good site is built on a good home page.

Response page

Every web site would be advised to have a response page. There may be many types of responses you could be expecting from the viewer. It may be a request for information, a comment on your website/web page, a survey form filled in a request to be added to a mailing list, a willingness to participate in your campaign, a wish to give a monetary aid, etc.

Contact information

It is important to put your mailing address, location, contact person, telephone, fax, email etc., on your website. It is amazing how many international contacts one makes through the website for whom this information of where you are located is hard to find. One must always keep in mind that a person in *Timbuktu* could view this web page and hence think from that angle, what would he/she need to see. Maybe a road map would help him to get to your place. Maybe your office timings would be useful if you are open for business only at certain hours. Maybe names and designations of some key persons in your organisation with whom the public can interact directly for specific needs would be important.

Distinct Identity

A website should have a certain distinct identity that it sets apart from others. This will come in time and is achieved by a combination of design and content. Quite often this identity is built up over a period of time and a particular website gets known for a particular type of site.

Any page is a combination of the colour chosen, the font used, the placing of the text and images. This combination can determine the visual effect of the page. The layout of the content can be dramatically enhanced by simply using different font sizes for different headings like you would do in MS-WORD. This will clearly bring out the matter that you want to emphasize. One can use a colour that stands out from the rest of the text when you want to draw attention to something. The background colour of the page can be changed to suit your needs. Try to browse different sites and see how they have used colour and text to make visual impact. Be wary of changing font type, though. The only font types that all browsers are capable of are Times Roman and Courier. Other fonts will show up well on your computer but depending on what the client browser had on his machine your fancy font may be substituted by something else which will completely affect the layout of your page. You can use images to communicate very effectively on a web page. Animations can also be added to pages to add interest and display creativity. But animations take a lot of space and time to download.

Secrets of a good website

Content is the key. A website stands or falls depending on the content. No amount of fancy designing can make a success of bad content even a badly designed site if it has important content will be grudgingly but faithfully browsed. The content of your website should be valuable to the ultimate end user. Resource is another key to attract visitors. Today the entire world is looking for access to resources on the Internet. If your organisation has certain resources that can be made available to the public this is the perfect vehicle to do so.

A site should be responsive to the feedback received through the website. If somebody sends in a response and does not get a reply he/she will assume that this is a poor site and will move on. Ultimately it is the frequency of updation that makes the site worth returning to. A dynamic site that always has new information is irresistible. A of course a good page layout that is easy on the eye and good navigation throughout the site adds to the readership.

Some of the common pages you will see on the other sites are a guestbook page, a FAQ page, a sitemap and what's A NEW PAGE. A guestbook or visitors page can be used to collect information on the types of people who visit your site and the kind of information they want. A frequently asked question is a very good way to avoid repetitive questions and also provides a valuable service to the end-user. A page detailing what's new or recently updated on your site helps a regular visitor to pinpoint the exact pages he needs to view.

How users read on the web

People rarely read webpages word by word; instead they scan the pages, picking out individual words and sentences.

Highlighted keywords Meaningful subheadings

Bulleted lists

One idea per paragraph (users will skip over any additional ideas if they are not caught by the first few words in the paragraph)

The inverted pyramid style, starting with the conclusion

Half to quarter the word count (or less) than conventional writing

It was found that credibility is important for web users, since it is unclear who is behind information on the web and whether a page can be trusted. High quality graphics, good writing, and use of outbound hypertext links can increase credibility. Links to other sites show that the authors have done their homework and are not afraid to let readers visit other sites.

Content/ Portal development

We normally write the way as we were trained to write, starting with the foundation and gradually ending up with a conclusion. Most research papers and engineering reports open with a problem statement, then review the prior art, and move into a detailed discussion of the different options that are considered and the methods that are used. After going through twenty pages of basics the patient reader may find a section entitled results with detailed tables, charts, and statistical tests; and after an additional five page of this, a page or so of conclusion is reached

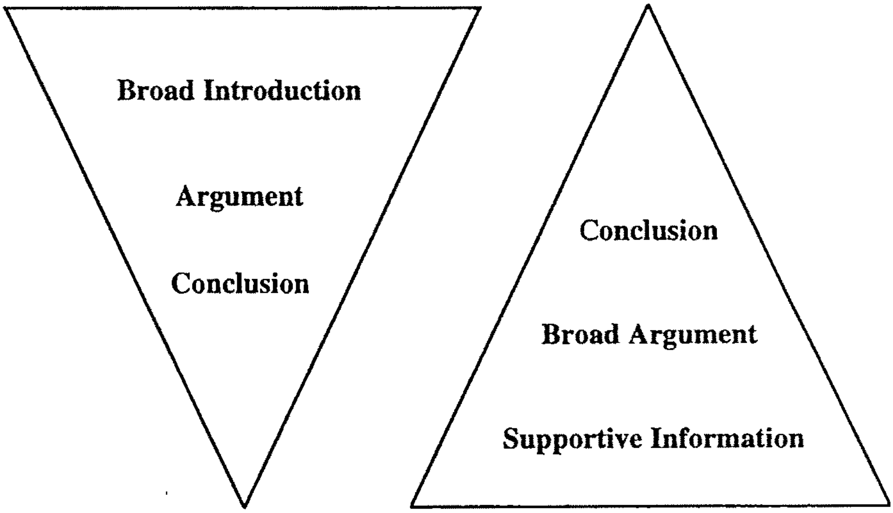

Figure. *Inverted Pyramids in Cyberspace*

Journalists have long adhered to the inverse approach: start the article by telling the reader the conclusion followed by the most important supporting information, and end by giving the background. This style is known as inverted pyramid for the simple reason that it turns the traditional pyramid style around. Inverted pyramid writing is useful for newspapers because readers can stop at any time and will still get the most important part of the article.

On the web, the inverted pyramid becomes even more important since we know from several user studies that users don't scroll, so they will frequently be left to read only the top part of an article. Very interested readers will scroll, and these few motivated souls will reach the foundation of the pyramid and get the full story in all its gory details.

Therefore we would expect Web writers to split their writing into smaller, coherent pieces to avoid long scrolling pages. Each page would be structured as an inverted pyramid, but the entire work would seem more like a set of pyramids floating in cyberspace than as a traditional article.

Major search engines

Search engines are to be well maintained and upgraded when necessary, to keep pace with the growing web.

Search engines: Also called "spiders" or "crawlers," search engines constantly visit web sites on the Internet in order to create catalogs of web pages. Because they run automatically and index so many web pages, search engines may often find information not listed in directories.

AltaVista (http://www.altavista.com/) : AltaVista is consistently one of the largest search engines on the web, in terms of pages indexed. Its comprehensive coverage and wide range of power searching commands makes it a particular favourite among researchers.

Ask Jeeves (http://www.askjeeves.com/) : Ask Jeeves is a human-powered search service that aims to direct you to the exact page that answers your question. If it fails to find a match within its own database, then it will provide matching web pages from various search engines.

Excite (http://www.excite.com/): Excite is one of the most popular search services on the web. It offers a medium-sized index and integrates non-web material such as company information and sports scores into its results, when appropriate. It also offers one of the best news search services available: Excite NewsTracker.

Google (http://www.google.com/) : Google is a search engine that makes heavy use of link popularity as a primary way to rank web sites. This can be especially helpful in finding good sites in response to general searches such as "cars" and "travel," because users across the web have in essence voted for good sites by linking to them.

GoTo (http://www.goto.com/) :GoTo is the only major search engine with sells listings.

HotBot (http://www.hotbot.com/): Like AltaVista, HotBot is another favourite among researchers due to its large index of the web and many power searching features.

Infoseek (http://www.infoseek.com/) : Infoseek is one of the more popular search services on the web. Provides quality results in response to many general and broad searches.

MSN (Microsoft) (http://www.msn.com/) : Microsoft's MSN service features both directory listings and search engine results, powered by Inktomi. Other search engines are also featured at the service.

Yahoo (http://www.yahoo.com/) : Yahoo is the web's most popular search service and has a well-deserved reputation for helping people find information easily.

Shopping Search

There are a number of search engines that will check prices at various online stores. Two major search engines also incorporate this type of search into their services, listed below

Acses (http://www.acses.com) Looking to buy a book online. This service checks about 25 Internet bookstores to find the best price.

Bottom Dollar (http://www.bottomdollar.com) Comparison shops for books, hardware, software, and more.

Buyers Index (http://www.buyersindex.com) lists information from 9000mail order companies, web shopping sites, classified ad sites and other venues.

A Selected list of web sites

The following is a randomly selected list of informative web sites in India and abroad, some of which deal with Indian items. The number of such web sites is increasing very fast almost every day. There is not any universal bibliographic control mechanism to keep track of them.

www.compare.net : A nice easy way to search for various products

www.shopfind.com : Clean interface and fast results for those looking for products on the web. Only sites offering secure, online ordering are accepted

www.amnesi.com : Can't remember the exact URL of a website? Tell amnesi what you remember, and it will provide lists of matching sites.

www.chechdomain.com : Allows checking on domain availability with countries around the world

Answer searching

What is answer searching? If someone looks for an answer to something, rather than a specific website, there are certain sites which provide answers to questions

www.askjeeves.com: A human powered search service that aims to direct to the exact page that answers a question. If it fails to find a match within its own database, then it provides matching WebPages from other search engines.

www.humansearch.com : A team of volunteer researchers behind the human search site trying to find out an answer for a specific question- whether it is located on/ off the web. Takes up to 48 hrs for a response.

www.informationplease.com : These are almanacs for those who need trustworthy facts. The site allows searching across Information please's various almanacs, its encyclopaedia and its dictionary.

Legal searching

www.findlaw.com : A directory of legal websites produces by the people of Law crawler

www.lawcrawler.com : An AltaVista powered engine that returns information only from sites that have been identified as dealing with legal issues.

Other speciality services

www.exes.com : A travel-oriented site

www.forumone.com : Allows searching over 65000 web based discussion forums

www.mwsearch.com : Listing are created by spidering pages from a select group of medical sites, in order to keep results tightly focussed

www.when.com : An events directory and personal calendar website. Users can browse events listings ranging from Internet chat sessions to upcoming trade shows

http://enclozine.com : An illustrated encyclopaedic ezine and portal featuring articles, games, puzzles, quizzes, pictures and photographs. An excellent resource for students and teachers

www.britannica.com : Britannica science news, discovery online, Encarta science, new scientist, PBS science, Pfizer funzone discoveries, Scientific American, SCI seek

Few remarkable Indian sites are:

http://www.indiafocus.indiainfo.com

www.careerindia.com

www.wow-art.com : World's of Wonder specializes in contemporary illustrative and cover art in the genres of fantasy, science fiction and horror – and unique or highly limited editions of three dimensional artworks which carry out these fantastical themes.

www.metacrawler.com : Ask an expert for free information on... Which leads to metacrawler.askme.com. One has to enter a search topic

www.egurucool.com : A comprehensive education and career portal. Caters to all learning needs of students. School and college academics, entrance exam preparation, career and personal counseling, help for studying abroad, etc

www.asiadragons.com/india/education : A complete listing of universities and Colleges in India

http://educationtimes.com/exammain.htm : All about competitive examinations

http://www.looksmart.com/eusl/ : Language studies in India – Bengali, Hindi, Tamil, Telegu, Urdu

www.freeindia.org : India's unique Educational and current affair site.

Performing arts

http://www.imaxx.net/~vani.ecpa.htm : A site of the Ellora centre for performing arts

http://www.bharathikalalaya.com : Bharathikalalaya is in USA. A fine arts institution dedicated to performing arts in Indian Music and Dance

www.artindia.net : A comprehensive site with complete listings of Indian Musicians, dancers, visual artists, etc., and information on various arts.

www.abhivyakti.org : Centre of fine arts and performing arts. Abhivyakti is an institute for all age groups to learn, develop various forms of art and its forms under the guidance of renowned teachers.

www.premamusic.com : Indian music links

http://batish.com/archives/arcgloss.html : Glossary of Indian music terms

www.pacificnet.net/~johnr/aesop/ : Online collection of Æsop fables

www.gl.umbc.edu/~achatt1/Bio/rabi.html : About Rabindranath Tagore, link to Gitanjali, Ezra Pound and Yeats

www.nobel.se/laureates/literature-1913-press.html : Write up on Nobel

www.indianmythology.com : Stories on Indian Mythology

Lot of information is on the web. The only thing is that one should know how to get them. The more one browses the more one becomes familiar with it. Proper keywords play a very important role in finding out something from the web. We must be specific with keywords and again we must always be very clear of what are we trying to find out.

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Abstract: This tutorial paper introduces history and growth and working of Internet. After explaining such concepts as protocol, packet switching, interception, etc and such mechanisms as html, http, URL, www, e-mail, IRC, homepage, response page, etc, the author provides a step by step short cut manual for actual hands on use of internet. Along with the above, a list of major search engines and a small selected list of web sites, particularly some Indian web sites useful for librarians and information workers are given.

Hybrid Library : A New Horizon of Information Services

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Introduction

From the days of cave life to the present post-industrial information society, knowledge is having exponentially continued multi dimensional dynamic growth. In the modern society information is an important ingredient to the development in all spheres of human life and is needed virtually in every field of human thought and action. Information is considered as fourth resource after money, manpower and materials. Information is needed by every individual, whether a generalist or a specialist, an agriculturist or an industrialist, a general worker or a manager. The principal objective of a library or an Information Center (IC) is still to provide 'right document / information to right user at right time'. There is an increasing demand for information. Libraries are meant for collection, retrieval and dissemination of information through which Information service is possible. Conventional concept of library is a place where books, manuscripts, musical scores or other literary and artistic materials are kept 'for use and not for sale.' Thus an assembly of books or graphic records is not a library, nor is a library a place where such records are preserved. 'A library is a growing organism'. The Library in the modern sense is a logical laboratory for learning about human interaction with Information systems and intellectual processes associated with information acquisition, integration and problem solving.

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Concept of hybrid library

Recently, libraries are being changed over from their traditional form (traditional library or TL) to automated form. Many libraries of developed countries have transformed themselves into electronic form and become the electronic library (EL). They are also called digital libraries (DL). Some authors however make some fine differences between EL and DL. Many other libraries are moving towards the goal of being virtual library (VL). In India the situation is different. Better TL management is the immediate and urgent need. In that automation or computerization may be attempted in a cost-effective manner. Except for special and higher level academic libraries, the path towards attaining a total EL or VL status is remote: Some of the foreign mission libraries in India have become EL. They have computerized acquisition, cataloguing, and circulation system processed by using bar code technology. In these libraries there are electronic resources, but holdings are mostly in print form. Documents are also stored in the digital format by using computer technology. A digital or electronic library gives users on line-access not only to its own catalogue for printed materials but also to a variety of other electronic resources located both within and outside the library.

In the present situation, which is expected to prevail for a number of decades hence, anywhere in the world, more so outside the developed countries. To cope up with this transitional phase a new concept called hybrid library (HL) has emerged in addition to the electronic libraries and digital libraries. Rudbridge suggests that a hybrid library brings a range of technologies from different sources together, integrates systems and services in both electronic and print environment. He further argues that, "the name hybrid library is intended to reflect the transitional state of the library, which today can neither by fully print nor fully digital." Pinfield et al also bear the same opinion and suggest that the hybrid library is on the continuum between the conventional and digital library.

Therefore we can say that hybrid library is the combination of traditional library, electronic library and digital library. In the hybrid library system, the TL, the EL and the DL are components of the total HL system, and are complement and supplement to the HL system.

Uses of technology in the hybrid library

The following technologies are essential to hybrid library :

a) Computer technology : Large amount of text, sound and image containing information can be stored, retrieved and managed very quickly and easily.

b) Telecommunication technology : Networking through resource sharing and resource access becomes feasible with the help of communication technology of satellite link, Internet, e-mail, fax etc.

c) Reprographic technology : Reprographic technology includes photography, micro-copying, Xeroxing, optical and audio / video digital copying and scanning.

d) Library technology : Techniques for performing library functions e.g., classification, cataloguing, database creation, CAS, SDI, etc.

e) Technical communication: Skills and techniques of technical writing, editing and disseminating of information, information consolidation, content development, portal development, knowledge management etc.

Necessity of hybrid library

An integrated supply of printed and electronic information leads to a new concept of collection and to new option for collection development. In a HL the collection development approach with combination of traditional library materials and digital resources the user is guaranteed access to desired Information. Market competition and customer demands have urged libraries to acquire and access information in the digital format.

Hybrid library and its advantages

- It provides services to all levels of users by providing different kinds of print and non-print media.
- It helps to preserve rare and fragile books and other documents that are rapidly deteriorating through over-use or long term non-use.
- One of the important benefits is convenience. Once books are converted to digital form users can retrieve them in seconds rather than minutes. Several users can simultaneously read the same book or view the same picture.
- Single copy of a costly and rare document can fulfill the demand of many users. Increasing cost of document and decreasing library budget can be balanced by using this technique.
- Professional staff is relieved from clerical chores of re-shelving of documents. As a result they are available for user oriented service and for ready reference service.

- Electronic copies occupy millimeters of space on a magnetic disk rather than meters on a shelf. Massive storage problem can be solved by Hybrid library system.
- Ultimate solution for distance learners is to have access to the same learning opportunities, which are offered to the regular students on the Campus.

Some of the hybrid library projects

One of the major projects to understand effectiveness of HL is that of e-lib project phase 3 in UK. The intention was to explore the issues surrounding the retrieval and delivery of information in a mixed-mode environment – electronic and paper; and also to investigate the matter of integrating different electronic services so that a single search approach can be offered to the end user. Five hybrid projects were approved for an early 1998 start. They were Agora; Builder; Headline; Hi-life; and Malibu.

Agora :

<http://hosted. ukoln.ac. uk/agora/>
It is one of the e lib phase 3 Hybrid Library projects, that aims to provide an open, standards- based platform for distributed, mixed-media information management as well as a frame work for end-user-oriented services and an infrastructure, which can be scaled up to provide the back bone for national access to distributed collections such as the DNER built on the work of EDDIS and MODELS.

Builder :

<http://builder.bham.ac.uk/>
Birmingham University Integrated Library Development and Electronic Resources, is also a UK e-lib phase 3 hybrid library project. The model focuses on six inter-related modules (user registration and induction; ordering and delivery of materials, metadata index for printed and electronic sources; teaching and learning; publication and digitization, access gateways, applied across six subjects.

Headline :

<http : //www. headline. ac.uk/>
Headline is the abbreviation of Hybrid Electronic Access and Delivery in the Library Networked Environment, a UK e lib phase 3 project: The over all aim

is to develop and implement a working model of the hybrid library in a range of real-life academic situations with strong emphasis on managing the presentation of resources to the user and on integrating a wide range of both resource and delivery options in the subject of economics, finance, business and management.

Hy life :

<http://www. Unn.ac.uk/~xcuz/hy life/>

A UK e lib phase 3 hybrid library project aimed to address the integration of the delivery of large scale, print and electronic services behind an electronic interface and with the focus on sears and on organizational, social and educational issues rather than technology. The project aimed to develop a series of customer oriented electronic interfaces to provide access to electronic and print services.

Malibu :

<http ://www.kcl. ac. uk/humanities/cch/malibu/>

Managing the hybrid library for the benefit of users, a uk e lib phase 3 hybrid library project that aims to focus on the humanities. It will investigate and test how electronic resources, which may be local, National, International, can be integrated with paper and other types of local resources within the services provided by real libraries.

Services provided by hybrid library

Hybrid library will also provide a range of services to the user including various levels of instruction and timely delivery of information. Various Information services of a hybrid library are:

- Bibliographic service
- Abstracting service
- Indexing service
- Reference service
- Distance learning
- Directories
- Consultancy service
- Literature Search Service
- Current Awareness Service
- SDI
- Reprint Service
- Feasibility Report
- Progress Report
- User Instruction
- Inter library loan and document delivery service
- Internet service
- Computer based information service
- Referral Services
- Other Services
  - Training
  - Seminar

Future of hybrid library

The ongoing information technology revolution has greatly affected all areas of human life and activity. Library, information and documentation centers are no exception. IT based libraries are being changed from HL to VL. The virtual library implies absence of any sense of physical location and existence. The user can access the information from any terminal and the information can be held in any link computer.

Characteristics of virtual library

a) There is no physical collection and location
b) Documents will be available in electronic format.
c) Documents are not stored in any one location.
d) Documents can be accessed from any work-station.
e) Documents are retrieved and delivered as and when required.
f) Effective search and browse facilities are available.

Virtual library will be mine of information sources. Therefore services of a virtual library may be better than any other form of library.

Conclusion

Not all libraries can have the infrastructure like computer hardware and software, manpower, money for retro-conversion of, and for accessing, downloading and storing information in digitized form. Any library undertaking this project has to take care of all these factors involved. If the library is already computerized and has net work connection, the cost will be lesser. But if it is not so, then the cost will involve the cost of equipment and the cost of leasing telecommunication and huge amount of money is needed for transformation. A sound qualified staff, ready to perform additional duties frequently would be needed. They will need constant up dating of technical knowledge and skill. To participate more fully in developing a hybrid library, librarians will have a hard task to do. They will need the help of technologists, to better understand the possibilities being created by digital technologies and technologists will again need the help of librarians to make the processes successful. Both these groups need to attain a state of maximum understanding and co-operation to give satisfaction to the users.

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Abstract: The article describes the concept of hybrid library (HL), which may be considered as a bridge or step between the traditional library (TL) and the virtual library (VL) in the light of the recent trend of moving over from traditional documents to digital resources. A HL can claim to combine the virtues of the two to make fruitful services in the present state of affairs.

Community Library-cum-Information Centre (CLIC)

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This article is a translated version of the Bengali document obtained from the Department of Mass Education Extension of the Government of West Bengal, Bikash Bhavan, Salt Lake, Kolkata-700091 [Meno. No. 1495.....EDN (M.E.E.) Dated 14.9.1999]—Ed.

Formation of Community Library-cum-Information Centre (CLIC) in West Bengal

Though West Bengal has a major role in library movement of India, still there is no existence of public library in about more than one thousand and five hundred village panchayats. Hence, it is badly needed to establish a Community Library -cum- Information centre (CLIC) in those Gram Panchayat areas.

After a thorough examination of the instant case, honourable Governor of the state has veted (accepted) that scheme, where there is no Government Sponsored Public Library in the Gram Panchayats under the catchment area of a Panchayat Samity, there will have to be established a community Library-cum-Information centre (CLIC) during the current 5 year plans. The place of establishing the community Library -cum-Information Centre (CLIC) will be decided by the particular Zilla Parishad who will select the Gram panchayats under the jurisdiction of a Panchayat Samity which has no public library and the list of the selected place will be submitted to the Department of Mass Education Extension of the Government of West Bengal. After being approved by the Governor, it has been further ordered by the Government of West Bengal that Government will sanction a lumpsun of Rs. 9000/- (Nine thousand only) for the purchase of Books, Newspapers and furnitures for each of the centre(S).

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Apart from that, a sun of Rs. 16000/- (Sixteen thousand only) will be sanctioned as recurring grant. This recurring grant comprises of Rs. 9600/ (Nine thousand and Six hundred only) for CLIC organiser's honorarium [at the rate of Rs. 800/ - (Eight hundred only) per month] and Rs. 6400/- (Six thousand and four hundred only) on account of purchase of books, newspapers, magazines and for contingenency. The Zilla Parishads will submit the utilization certificate of the sum sanctioned to the Department of Mass Education Extension, Government West Bengal at the end of each financial year.

The amount sanctioned for this project will be expensed in the following heads :

Honorarium

2202-Gneral Education -80—General—800—other Expenditure—state—(Annual plan and Ninth Plan)—001—Development and Expansion of Library Services—31—Grants in Aid—0f—Grants in Aid towards salaries.

Other Expenses

2202—General Education—80—General—other Expenditure—state plan (Annual plan and Nineth plan)—001—Development and Expansion of Library Services—31—Grants in Aid—01—other Grants in Aid.

The Community Library—cum—Information Centre order (CLIC) project definition will account for an indispensable part of this.

Plan of Project

1. There are a large number of public libraries in West Bengal, Centre place of library movement of India. If we count only the Government and Government Sponsored Public Libraries including the State Central Library at the top position, there are 11 (clever) Government Libraries, 19 (Nineteen) District Libraries, 227 (two hundred and twenty seven) Town/Sub-divisional Libraries, 2200 (Two thousand and two hundred) Rural or Primary Unit Libraries and 7 (Seven) Aided Libraries in West Bengal.
2. Still, there is no Government sponsored Public Libraries in the 1500 (one thousand and five hundred) Gram Panchayats. If we try to establish the rural libraries in those Gram Panchayats there will be a cost to the tune of Rs.75 (seventy five) crores only. Besides, there will be an

additional cost of Rs.15 (fifteen) crores per year in the next phase.

3. (a) In the circumstances, it is decided that there will be a community Library–cum–Information Centre in those Gram Panchayats.

   (b) Where there is no Government Sponsored Public libraries in the Gram panchayats, those Gram panchayats will be considered under this Project.

   (c) The target level in the current 5-year plan is to be established one centre of this type of Gram Panchayat areas.

   (d) These centres will be constituted by the particular Gram Panchayats through the endeavour of the local people.

4. These centres will not be under the West Bengal Public Libraries Act, 1979.

5. In the financial year 1999-2000, a centre has been established in each of the panchayat Samity areas. Particular Zilla Parishad will decide that where there is no rural library in the Gram Panchayats under the catchment area of a Panchayat Samity and the Community Library-cum-Information Centre will be established in that areas and the selected list will be furnished to the Department of Mass Education Extension of the Government of West Bengal.

6. There will be a governing body for each of the centres. This body will consist of total 9 (Nine) members. The formation structure of this body will be as follows :
   (a) President will be the pradhan/Upo-Pradhan of the particular Gram panchayat.

   (b) A member will have to be selected from one college teacher (local)/ one Head Master or Assistant Head Master or Assistant Teacher of a Higher Secondary or Secondary or Primarily School.

   (c) The other member will also have to be selected from a librarian/ library assistant of a Government Sponsored Library situated under the jurisdiction of that particular Panchayat Samity.

   (d) Another one member will have to be selected from the local people related with literacy movement or related with science and cultural work.

   (e) The other member will have to be selected from Gram Sebak who is related with particular Gram Panchayat works.

(f) CLIC 'centre organiser' is the convenor and member.

(g) Above all, there will be three reader members of that centre, (one of them should be a female candidate).

Following this structure, the respective Gram Panchayats will form the 'Governing body' or 'Managing committee' of the CLIC. The Secretary will be selected in the first meeting of the 'Governing Body' and the secretary will be selected from among the five members other than the President, the Gram Sevak, the Centre organiser and the Librarian member. The first meeting will be convened by the president of the CLIC.

The tenure of the 'Managing Committee' will be of 3(three) years. After every 3 years, the Panchayat Samity will decide the name of the librarian member, and the Gram Panchayat will decide the name of the teacher member and the name of the member related will literacy movement. The name of the reader members will be decided by the reader members.

7. For the smooth functioning of the centre, particular Gram panchayat should arrange the required suitable place. The position of the centre should be the nearer of the Gram Panchayat office. However, the Gram Panchayat can select any other place, if required.

   A few Gram panchayat can arrange the suitable place required for establishing the centre in their office premises.

   In any other cases, the Zilla Parishad can permit for building construction of the centre. As the centre will own the property of the Gram Panchayat as his own, so the necessary amount required for purchasing of furniture can be taken from J.R.Y. (Jawahar Rojgar Yojona), E.A.S. (Employment Assistance Scheme) or the Donation Grant of Tenth Finance Commission. Those Gram Panchayats which have mass education extension bhavan or the same permanent centres under the Continuing Education Programme, this centre can be started at those places.

8. These centres will remain open for three hours per day in any five days in a week including Saturday and Sunday.

   The particular managing committee of the centre will decide the time and working days of the centre according to the need of the local people.

9. (a) There will be an organiser for the smooth functioning of the CLIC. The organiser will be appointed by the Managing Committee.

(b) The centre organiser should be a permanent resident of the particular Gram panchayat area. His/ her age will be 40 years or above and the minimum educational attainment will be madhyamik or it's equivalent examination.

(c) There will be a preference regarding the selection of centre organiser for those who have participated in the literacy programme as M.T./ V.T./Despatcher or Assistant Despatcher etc.

(d) The appointment of the CLIC organiser for one year through contract and the honorarium will be Rs. 800/- (Eight hundred only) per months. The tenure of the organiser will be one year at present. At the time of the running of the project, if the job of the organiser is satisfied, then he can be re-appointed for another one year as a fresh appointee.

(e) The centre organisers will never be treated as Government Employee or the employee of Government sponsored organisation

(f) The system of the appointment of the centre organiser will be as follows:
The selected centre organiser will be appointed by the Governing Body after completion of the contract through the contract paper. The original contact paper will be under the safe custody of the Governing Body and the duplicate copy will be delivered to the CLIC organiser. Apart from the contract Paper, no other appointment letter will be given to the CLIC organiser.

10. The state Government will grant a lumpsum of Rs. 9000/- (Nine thousand only) for the purchase of Books and Furnitures through the Zilla Parishad.

Apart from that, there will be a yearly grant of Rs. 16000/-(sixteen thousand only) as recurring grant. The detailed description of grants and aids have already stated. The Zilla Parishad will be submitted the utilization certificates to the Department of Mass Education Extension of the Government of West Bengal at the end of the financial year.

11. Not deviating the services rendered by the public libraries, the importancy should be given to the following services by the CLIC :

(a) To reach the valuable and necessary current information to the general people for their social needs. Especially, to inform the new literate and the disadvantaged people about the civic amenities and their profession.

(b) To present the information about the other amenities through the centre.

(c) To make the habit of library use for the new literate and disadvantaged people as the part of adult education and continuing education programme,

(d) To provide information for the unemployed rural youths on their employment/self-employment as their sake of interest.

(e) To organise the emergency information for implementing the decentralised regional plan.

(f) To inform about the projects and works of the Gram Panchayat and about the account statement of the works and projects undertaken by the Gram Panchayet to the rural people for the administrative cleanliness and hypothecation. And if possible it should be noticed in such a way that it can auditable by the people.

12. If necessary, the Managing Committee can take subscription from the readers other than the new literate, and the children and young adults (not above 16 years). Besides this, the donation or gift from the local well-wisher or any other donation can be taken and can enrich the centre (s).

13. The centre organiser will responsible for the maintenance of accounts of the centre and will also responsible for the proper preservation of the documents of the centre. At the end of the financial year, the accounts of the centre will be audited by the Panchayat Accounts and Audit officer of the Block under the supervision of the Zilla Parishad and the said officer will be submitted the audit report to the Zilla Parishad. On the basis of the said report, the Zilla Parishad will despatch the report of the district to the state Government.

14. If these Centres will be started once, these will play the active role to increase the Conciousness among the village people.

15. If these centres will be included in the current programme of literacy and continuing education in the various districts, then on the basis of these centres the continuing education centres at the grass root level can be created later on.

16. For the formation of these centres and for the management of these centres, the District Library Officer, the District Information and Cultural Officer, the District Mass Education Extension Officer will provide

assistance in any form to the respective Panchayat Samity and Zilla Parishad. The Zilla Parishad will supervise the centres. If the services performed by the respective centres are not upto the satisfaction of the Zilla Parishad, the Zilla Parishad can stop the financial assistance to the centres.

17. Only in the case of the district of Darjeeling, the duties and responsibilities of the Zilla Parishad as stated above, will be performed by the Darjeeling Gorkha Hill Council (DGHC) and Siliguri sub-Divisional Council in their respective administrative fields.

Abstract : The document explains the development of community Library-cum-Information centre (CLIC) in West Bengal along with its organisational structure, finanical resources, staff recruitment procedures and services.

The Concept of Elasticity in Library and Information Science: Expenditure Elasticity of Information

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Introduction

There can be no doubt that the information market is becoming more sophisticated. Technology is playing and will continue to play, a leading-role. This is apparent from the ever-increasing range of information sources and products, and the software available for managing information. Regrettably, libraries have, on the whole, been ill-prepared to adjust to a new and undoubtedly crucial role in the modern information supply chain, particularly in India. They have been considered slow to adapt to the changes in the information scene in the last two decades. Such countries are failing to react to the pace of change. They remain geared to the simpler market, based on the printed word, and are in danger of being lost posterity. In spite of information revolution in the early 1970's heralded by the availability of on-line information, they neither appreciated the importance of their emerging role nor exploited their technological lead, or privileged position.

This is because of the fact that the production of information, its dissemination and use are becoming increasingly more costly and as a consequence the cost factor is impinging on users in a new way. Manufactures producing information on products are becoming selective in its distribution and in certain cases are charging for catalogues which were so far provided free [1]. In fact, increasingly with the cut-back in public sector spending, public libraries can no longer offer the service that they could. This gives rise to the idea of expenditure elasticity of information where information is considered as an economic resource like capital, labour and materials. Although the information services are not tangible and cannot be consumed directly, they play vital role for the production of physical commodities as well as for the fostering of overall economic development.

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While spending money to the library and information centres, the Government must consider how much return the community gains from it—i.e., by spending more, how much more value are obtained. Spending money takes management time (to price, to consider, to decide, to act) and this is often the practical control. This lack of critical consideration and action affects information body and it is always kept at the bottom of the priority list of our five year plans [6].

It is quite possible to state that the library, first as an important information channel in scientific communication and second as a cultural institution influencing the spiritual life of society, ought to become one of the powerful means for creating public and personal opinion on the necessity for society to reach the path of sustainable development. The library should also provide information support for this process. By joining the new information infrastructures based on telematics, libraries become the keepers of the new information media and hence the carriers of a new culture—that of information exchange, reading and mainly, communication and knowledge. The main idea here is not computer access to information, development of different technical means, and the library's becoming a quite different information system, but the questions : How should the system "man-library" be developed? How are these new telecommunications systems influencing the spiritual life of a person? How should the library work (as a knowledge stock) so that the cultural links through time do not break ? [3] And finally, how far the Government of our country is helping to develop the library functions?

However, before establishing libraries and information centres, the following information should be developed : village environment (geography, libelihood, education etc.); people's needs (physical, intellectual and psychological), availability of resources, infrastructural facilities; and attitudes of the people. It is important to women, students, young adults, children and neo-literates. Rural libraries, in particular, can act as information and community centres to improve living conditions and the quality of life [4]. So, the government must have to give priority for the improvement of this lagging field.

Information is not free, but libraries can make it freely available to the community. Information is more than a commodity; wide access to information can empower citizens and therefore be a method of wealth distribution [5]. But what is obvious in the LDCs like ours is that the government has an apathy to invest on a large scale in this field.

Empirically, I have tried to focus on this point.

Assumptions (Explanatory)

The cone idea of the model depends upon the following assumptions and explanations :

i) Information service is not a measurable quantity but may be ranked.

ii) Information services are produced by using the two factors—Information itself (N) and Librarians or information workers (L. say).

iii) A method of production of information services is defined as the combination of factor imputes required for the production of one unit of output or services.

Usually, same level of service may be produced by various methods of production. For example, a certain amount of information services may be produced by the following processes or methods :

$$\begin{array}{lccc} & \textbf{Process-I} & \textbf{Process-II} & \textbf{Process-III} \\ \begin{matrix}\text{Used Information Units (N)}\\ \text{No. of Librarians (L)}\end{matrix} & \begin{bmatrix}2\\3\end{bmatrix} & \begin{bmatrix}3\\2\end{bmatrix} & \begin{bmatrix}4\\1\end{bmatrix}\end{array}$$

The processes/methods/ activities of the production of information services may be presented graphically by the length of lines from the origin to the point determined by the information and librarian as inputs. The three processes above are shown in terms of a diagram below where Information (N) is measured along horizontal axis and the number of librarians along Vertical axis

It is obvious from the above diagram that process-1 is more librarian-intensive as compared to others and process-III is more information-intensive as compared to others. So, a certain level of information services may be produced by using various conbination of L and N.

iv) An isoquant is the locus of certain points where each point shows a particular combination of L and N so as to produce a given level of information services.

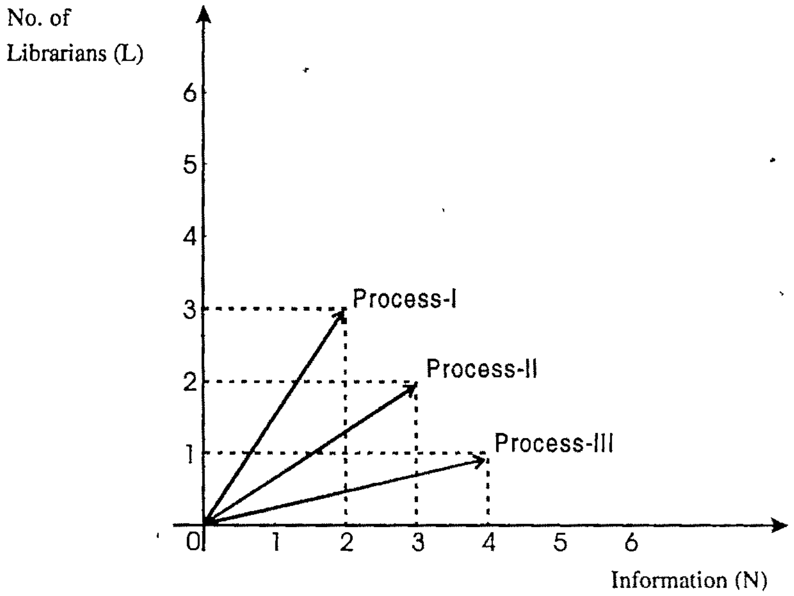

Fig.1

A typical isoquant is shown in Figure-2 below where AB is the isoquant that gives various combination of L and N for producing a given level of information services, say X.

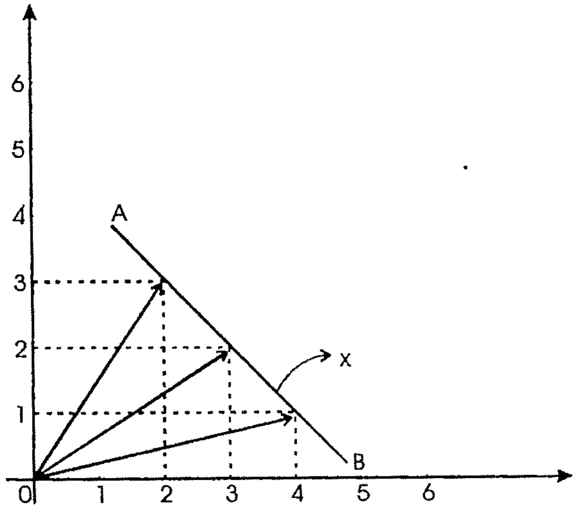

Fig.2

Along an insoquant, there exists a number of information production processes. So, different levels of information service indicate a map of isoquants as shown in Figure-3. The higher level of isoquant indicates the better level of information service. In the diagram,

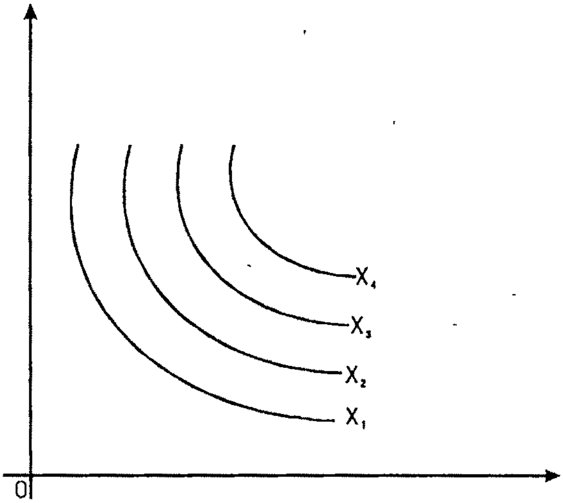

Fig-3

X_1, X_2, X_3, X_4 are different levels of information services such that $X_4>X_3>X_2>X_1$.

v) The information production (services) function describes the whole array of isoquants, each of which shows a different level of services. It shows how the level of service varies as the factor inputs (L and N) change. This function is assumed to be non-homogeneous. That is, the factor-proportion changes with the change in production plan.

vi) The slope of the isoquant implies the degree of substitutability of the factors which is also called the Marginal Rate of Technical substitution between the factors (MRTS).

The equation of an isoquant may be written as, X(L.N)=K (say), a certain Level of information service

Where, X is the functional relation

Taking total derivative of the above function, we obtain

$$\frac{\partial x}{\partial L}dL + \frac{\partial x}{\partial N}dN = 0 \text{ [Since 'K' is Constant]}$$

$$\text{or, } \frac{dL}{dN} = -\frac{\partial x / \partial N}{\partial x / \partial L}$$

$$= -\frac{\text{Marginal productivity of Information(N)}}{\text{Marginal productivity of librarian (L)}}$$

$$= \text{MRTS}_{N,L}$$

Here, $\frac{dL}{dN}$ implies the solpe of isoquant.

vii) given the input prices, an isocost prices, line is the locus of all combination of factors that the information centre can purchase with a given monetary cost outlay.

Let the price of one unit of information be 'U' and that of one unit of librarian be 'v'. Therefore, the isocost line is given by the cost equation,

$$\overline{E} = UN + VL$$

where $\overline{E} =$ total expenditure on N and L.

$$\text{or, } L = \left(-\frac{U}{V}\right)N + \frac{\overline{E}}{V}$$

Hence, the slope of isocost line is the negative of the ratio of the factor prices, i.e., $\left(-\frac{u}{v}\right)$.

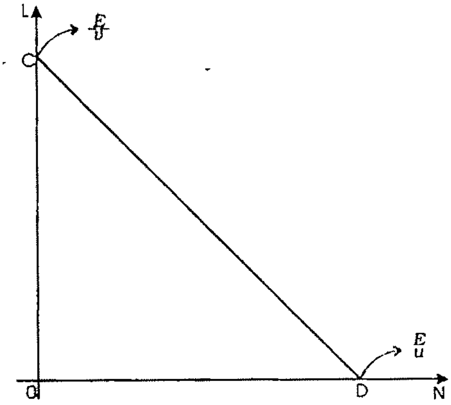

figure-4

The graphical representation of iso-cost line is shown in where CD-line is the iso-cost line

viii) Now, it is easy to show how a library or an information centre can maxrimise its services to the users, given the cost constraint or financial barrier. Let us superimpose the isoquant-map and the iso-cost line on the same diagram as shown in Figure-5, where the maxninum level of services has attained at point 'e' throught the tangency between iso-cost line and the highest attainable isoquant.

i.e., at point 'e',

$$\frac{dL}{dN} = -\frac{\partial X / \partial N}{\partial X / \partial L} = MRTS_{N,L}$$

$$= -\frac{U}{V}.$$

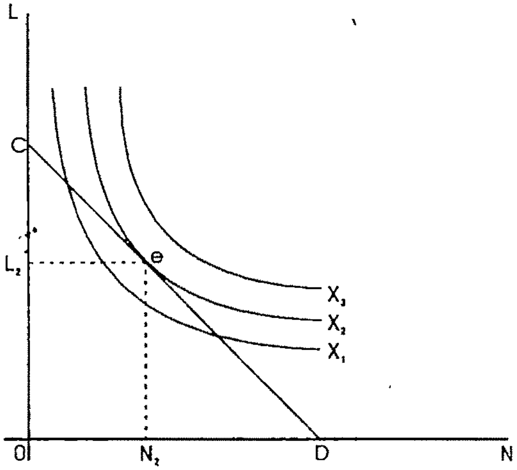

Fig-5

The optimal combination of factors is (L_2,N_2). That is, ON_2 units of information and OL_2 units of librarian together produce X_2 level of information services. In fact, higher levels of services (i.e., to the right of 'e') are desirable but not attainable due to cost constraint or financial barrier, given the prices of the factors [5].

The Model

With the given factor prices (V,U) and given information production (Services) function, the optimal expansion path is determined by the tangency points of successive isocost lines and successive isoquants, If the information production (Services) function be non-homogeneous, the optimal expansion path will not be a straight line, even if the ratio of the prices of factors remains constant as shown in figure-6 by OE.

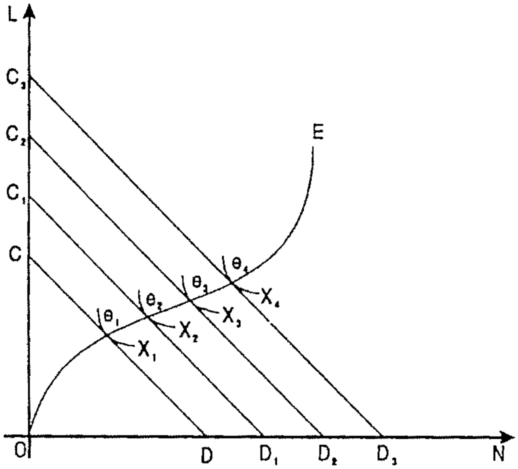

Fig. 6

OE curve shows how factor proportions change when expenditure changes, imput prices (i.e. v and u) remaining constant throughout, each point on the expansion pat (i.e., e_1, e_2, e_3 etc.) represents the least-cost combination of L and N in order to produce different levels of information services like X_1, X_2, X_3 etc.

From the expansion path, it is easy to calculate the expenditure elasticity of information. The expenditure elasticity of a factor is the relative responsiveness of the usage of the factor to changes in total expenditure. In other words, the expenditure elasticity of Information (N_x, say) is the proporitional change is the usage of N divided by the proportional change in total expenditure. Symbolically, the expenditure elasticity of information, $\eta_N = \frac{dN}{N} + \frac{dE}{E} = \frac{dN}{dE}\frac{E}{N}$. Where, 'N' is the usage of information for producing information services and 'E' is the total expenditure on factors.

A factors is said to superior, normal or inferior according as the corresponding expenditure elasticity of the factor exceeds unity? lies in unit interval or is negative, i.e.,

$\eta_N \geq 1$ =) Superior factor

$0 \leq \eta_N < I$ =) Normal factor

$\eta_N < O$ =) Inferior factor.

In the long run, all factors of production of information services are variable. There is no limitation (technical or financial) to the expansion of services. The concept of expenditure elasticity of a factor (say, information) may be explained in terms of figure-7, where op is any ray from the origin along which both inputs expand proportionately and OE is the expansion path.

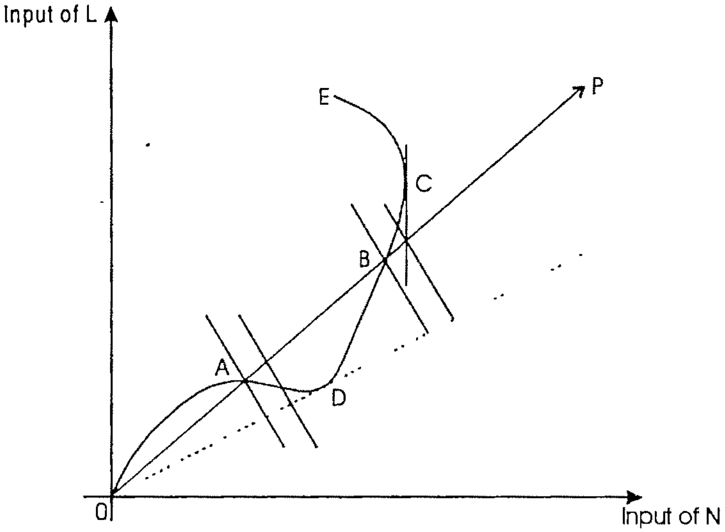

Fig. 7

At point such as A, the usage of factor 'N' expands proportionally more than total expenditure along the expansion path 'OE'. At all such points the factor is said to superior. At point 'D', change in usage of both inputs (L and N) is proportional and the expenditure elasticity is unity and the factors are said to be normal.

In some cases, the usage of a factor may decline when expenditure on it is increased. Beyond point 'c' the expansion path 'bends back" on itself. The usage of information (N) diminishes as expenditure is increased. Beyond point 'e', the expansion path "bends back" on itself. The usage of information (N) diminishes as expenditure is increased beyond point 'C'. Over this range of expenditure, information (N) is an inferior factor [2]

Conclusion

No funding agency will try to hire an inferior factor to produce services as it yields a small extent inspite of expansion of expenditure on it. The librarians or information workers as well as information are treated as inferior factor in the LDes.

The developed countries spend more and more for the library and information centres as information is used as a productive resource for their overall economic development. Hence, the librarians/information workers and information both are considered as superior factors of production of information services in such countines. In the under developed countries, the factors could not play a productive role for their economic development due to several impediments.

A mass installation of such facts needs a great deal of expenditure but it ultimately produces a small extent to the national income of an under developed country. This is why the governments in the LDCs hesitate to spend a large sum of money for the improvement of library and information centres or for the production of information services.

Although there has been 'information explosion', whatever be its extent, at the global level, the LDCs are still considered as information-poor countries. We know a country is poor become it is poor. So, the scarcity of information in such countries is the main cause of being information-poor. Further, there is a vast disparity is the distribution of information services both at regional, national and international level. Hence, the LDCs are compelled to enjoy a low level of information services within the economy. Therefore, a 'big-push', is terms of a large chunk of investment or expenditure (technological as well as finamial), is to be given to the library and information field so that the economy may be boosted up from the low level of usage of information. Hence, there should neues arise any question of inferiority of the factors relating to the production of information services in the LDCs.

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Abstract : This is a preliminary presentation. A theoritical analysis has been attempted to understand probable hesitation on the part of the government or of the funding agenies to invest more (profusely) in the sector of Library and Information Centres in Less Developed countries (LDCs). A probable solution to the problem has been suggested.

Guidelines to Contributors

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